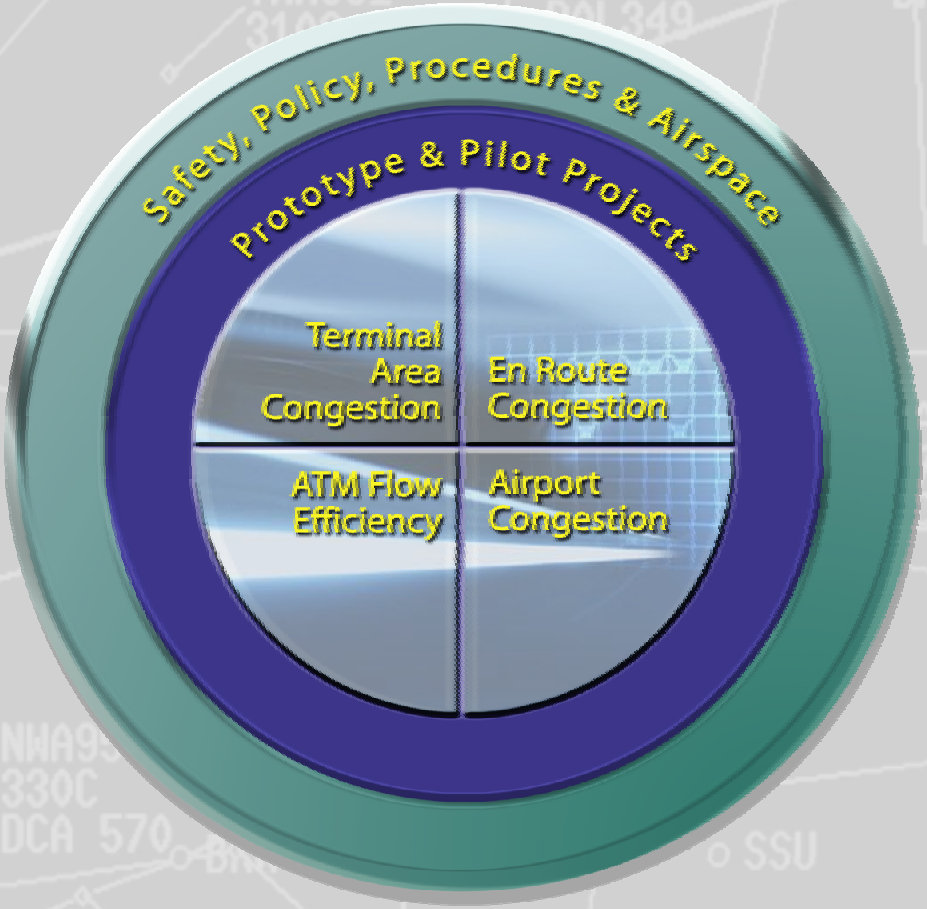
Operational Evolution Plan

Version 7 Industry Day



12:30	Welcome	• Amr ElSawy**, MITRE CAASD Sr. VP & General Manager**
	OEP Accomplishments	• Bobby Sturgell**, FAA Deputy Administrator**
	OEP Relationship to Flight Plan & National Plan	• Russ Chew**, FAA Air Traffic Organization Chief Operating Officer**
	OEP-Related Organizational Strategies	• Norm Fujisaki**, FAA ATO VP for Operations Planning Services**
1:20	NAS Operational Performance Analysis	• George Solomos**, MITRE CAASD Associate Program Manager, Modeling, Simulation & Performance Analysis**
1:35	Introduction of New OEP Design	• Gisele Mohler**, FAA Operational Evolution Plan Manager**
1:50	Panel #1 - OEP Core **(Firm commitments)** Moderator: Dave Watrous, RTCA President Customer Issues: Lorne Cass, RTCA OEP Work Group Co-Lead, and Northwest Airlines, Director, Flight Dispatch ▪Government Response ▪Customer ▪Audience Q&A	FAA OEP Executive Team members representing each Core Quadrant ▪ Ruth Leverenz**, Asst. Administrator for Regions & Center** ▪ Bruce Johnson**, ATO VP for Terminal Services** ▪ Rick Day**, ATO VP for En Route & Oceanic Services** ▪ Mike Cirillo**, ATO VP for System Operations** Customer/RTCA Representatives ▪ Basil Barimo**, ATA VP Operations & Safety** ▪ Scott Foose**, RAA Vice President** ▪ Bob Lamond**, NBAA, Director Air Traffic Services & Infrastructure** ▪ Col. Dale Goodrich, USAF **Dep.Dir. Airspace, Ranges and Airfield Operations**

Continued

3:05	BREAK	
3:20	Introduction of OEP Transition Rings	• Loretta Martin**, FAA OEP Staff Senior Operations Advisor**
3:30	Panel #2 OEP Transition Rings **(Policy, safety, airspace, and technical development initiatives)** Moderator: Dave Watrous, RTCA President Customer Issues Presentation: Roger Wall, RTCA OEP Work Group Co-Lead, and FedEx, Manager ATM Projects ▪Government Response ▪Customer ▪Audience Q&A	FAA OEP Executive Team members representing both Transition Rings**:** ▪ Wilson Felder**, OEP Transition Manager for Pilot Projects and Prototypes (Development Ring)** ▪ John McGraw**, OEP Transition Manager for Safety, Policy, Procedures and Airspace (Policy Ring)** ▪ Kate Lang**, Deputy Associate Administrator for Airports** Customer/RTCA Representatives ▪ Capt. Brian Townsend**, ALPA Chairman NAS Modernization Committee** ▪ Dick Marchi**, ACI-NA Sr. VP Technical & Environmental Affairs** ▪ Andy Cebula**, AOPA Sr. VP, Gov't and Tech Affairs** ▪ Rick Heinrich**, Rockwell Collins Director Strategic Business Development**
4:30	Response to Customer Feedback and Wrap up	• Russ Chew**, FAA ATO Chief Operating Officer** • Nick Sabatini**, FAA Associate Administrator for Aviation Safety**

Bobby Sturgell

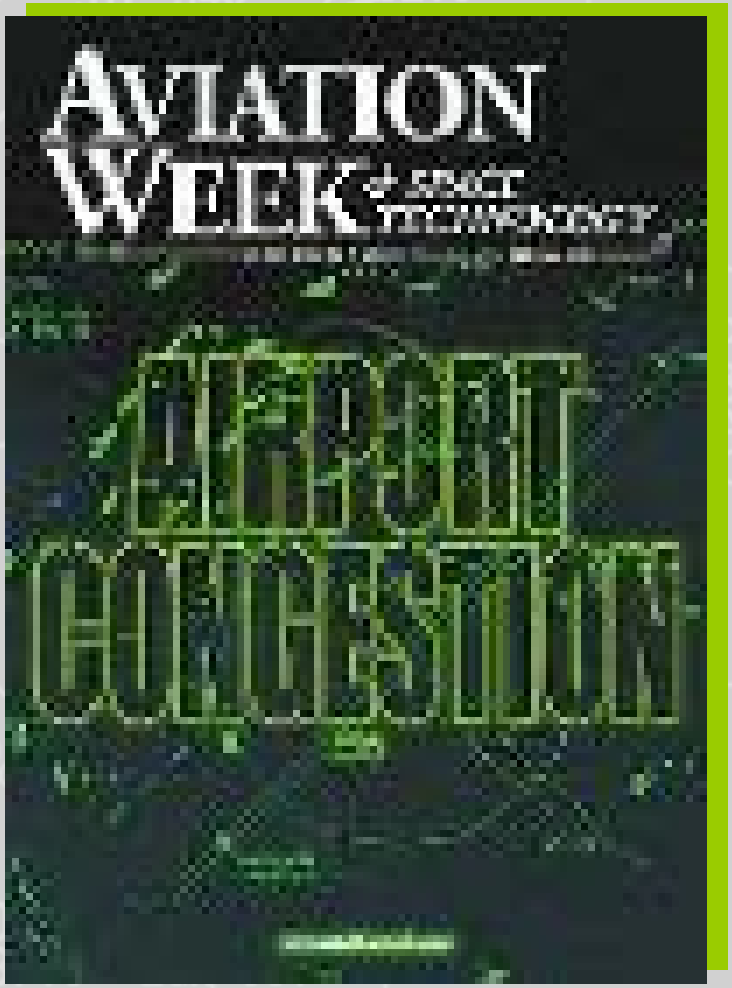
Deputy Administrator

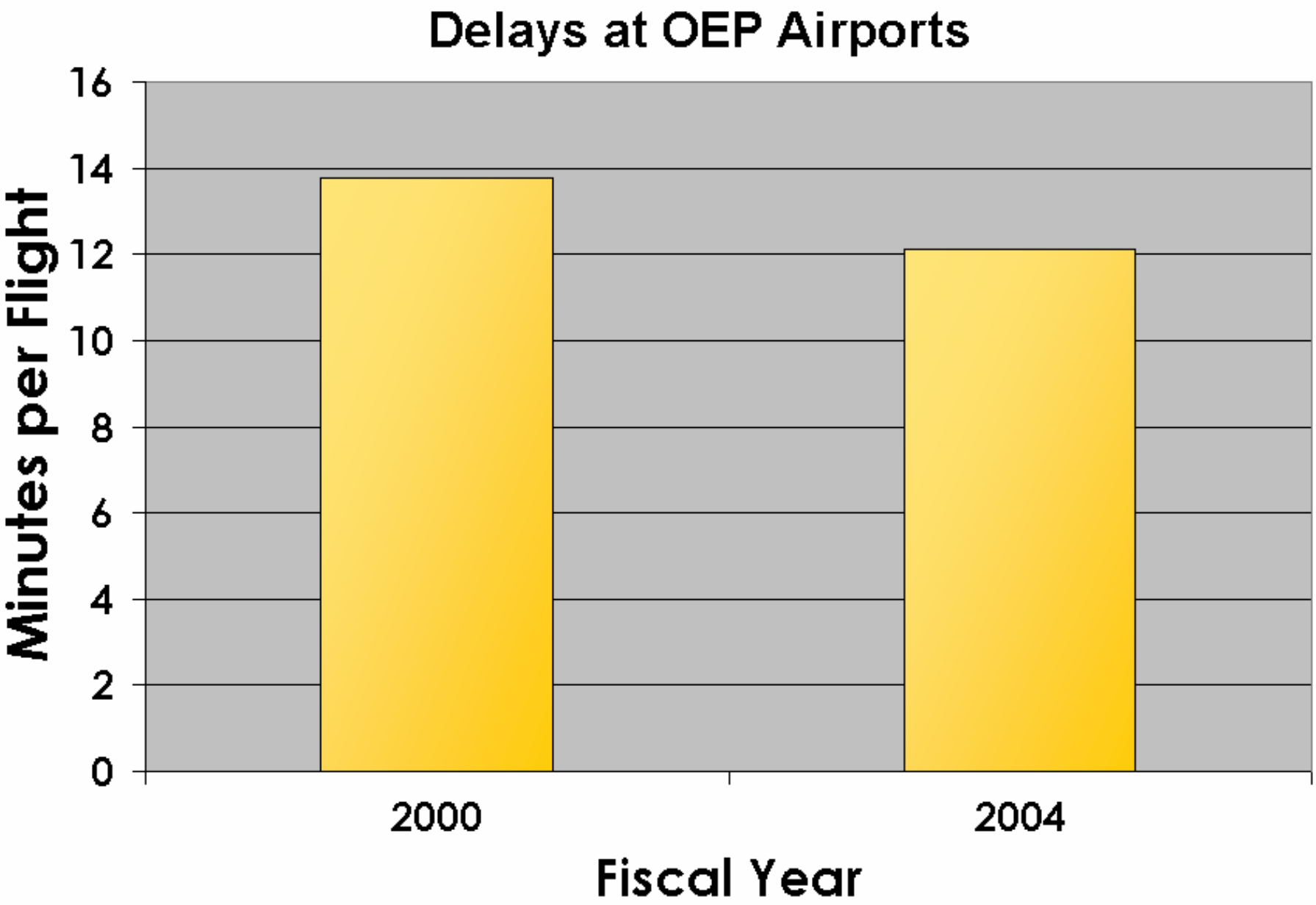
Federal Aviation Administration

Continuing the Commitment to Collaboration for Effective Capacity

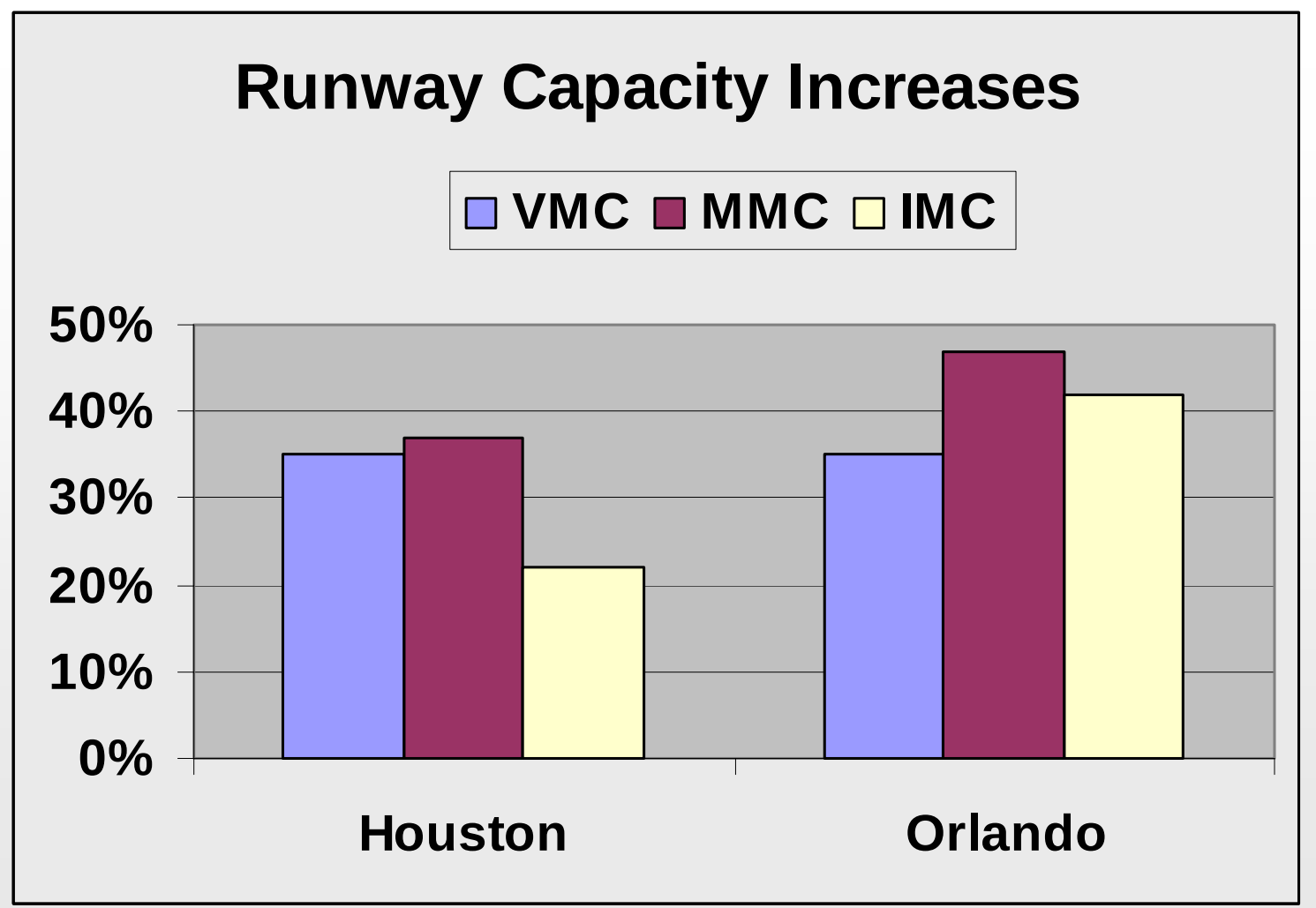
The OEP -- Operational Change Leading to Increased Capacity

- What We Do to Affect Change:
  - ✓ Identify needs
  - ✓ Establish goals
  - ✓ Implement solutions
  - ✓ Measure results
- Capabilities Delivered Need to Be:
  - ✓ Safe
  - ✓ Secure
  - ✓ Operationally beneficial
  - ✓ Affordable

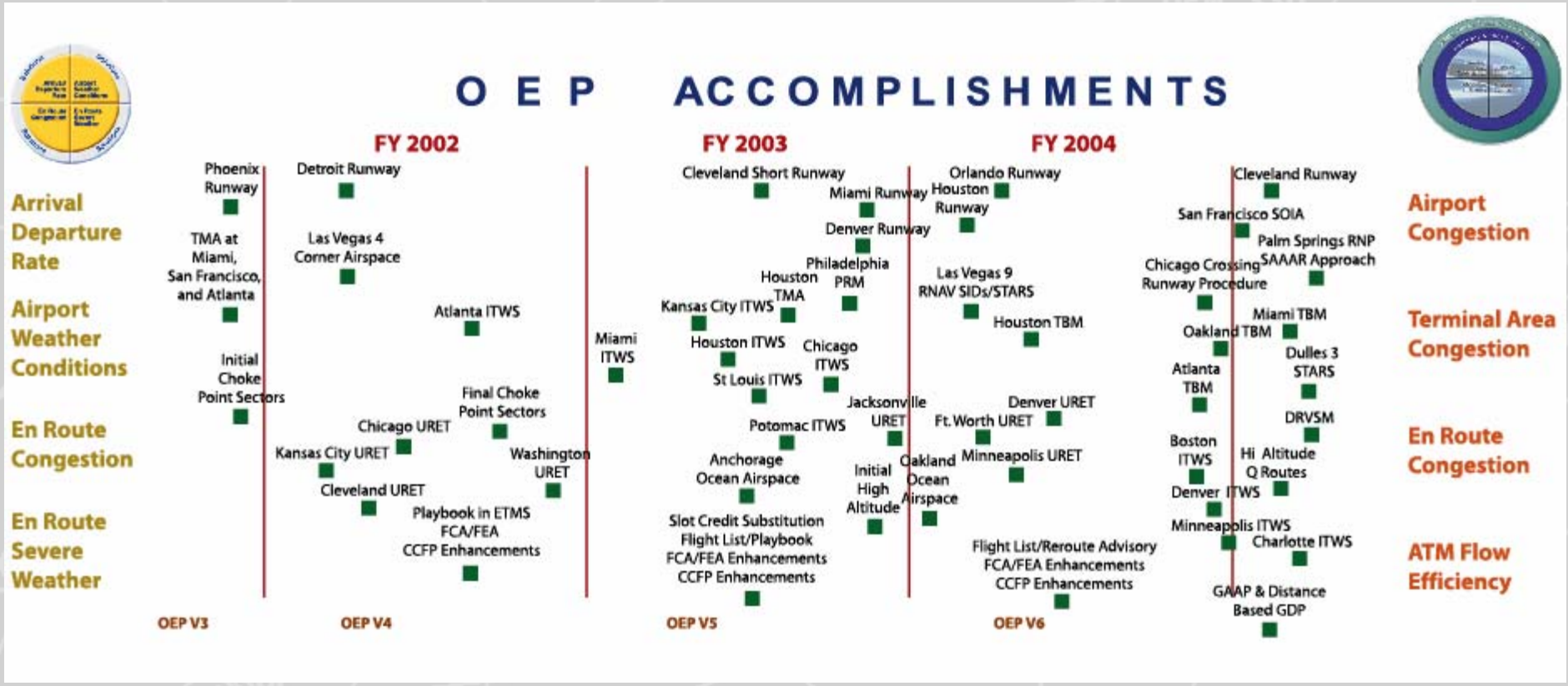



Delays at OEP Airports
Minutes per Flight
16
14
12
10
8
6
4
2
0
2000
2004
Fiscal Year

VMC and IMC Runway Capacity Increases



OEP ACCOMPLISHMENTS



Russ Chew

Chief Operating Officer

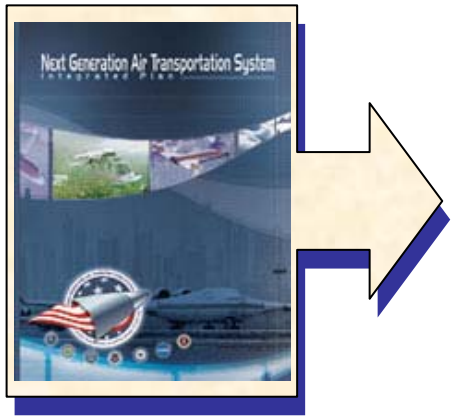
FAA Air Traffic Organization

JPDO, FAA, OEP, ATO Working Together To Shape the Future

ato
AIR TRAFFIC ORGANIZATION

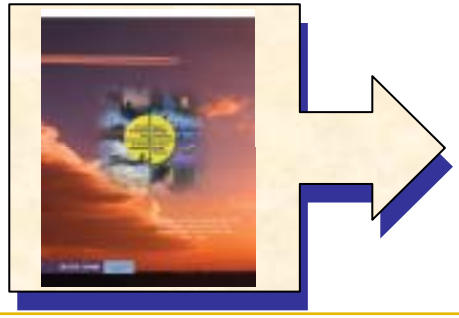
JPDO,FAA,OEP, ATO Working Together To Shape the Future

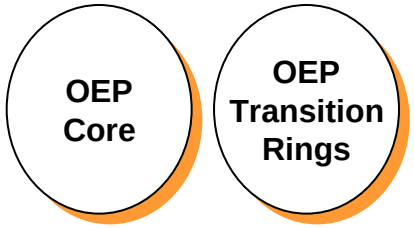
Three Plans



- Long view (2025) of the national air transportation system
  - Broad scope with air traffic management as one element
- Multi-Agency
- Transformational

- Five year strategic plan
- Four thrust (including capacity)
- All lines of business
- Supported by LOB business plans



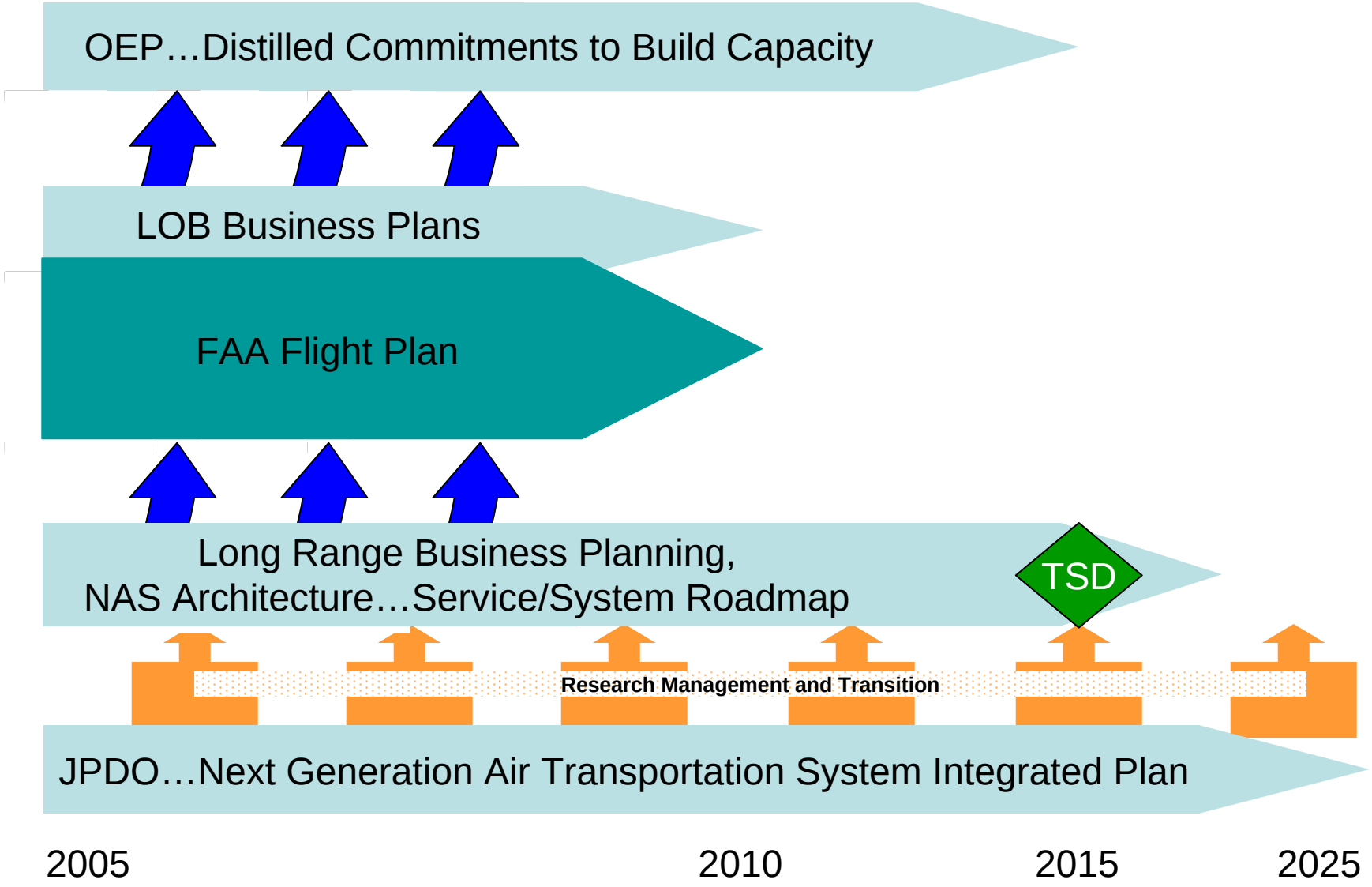


- Addresses critical capacity needs
- Ten year plan
- Distills, aligns FAA commitments to deliver capacity increases

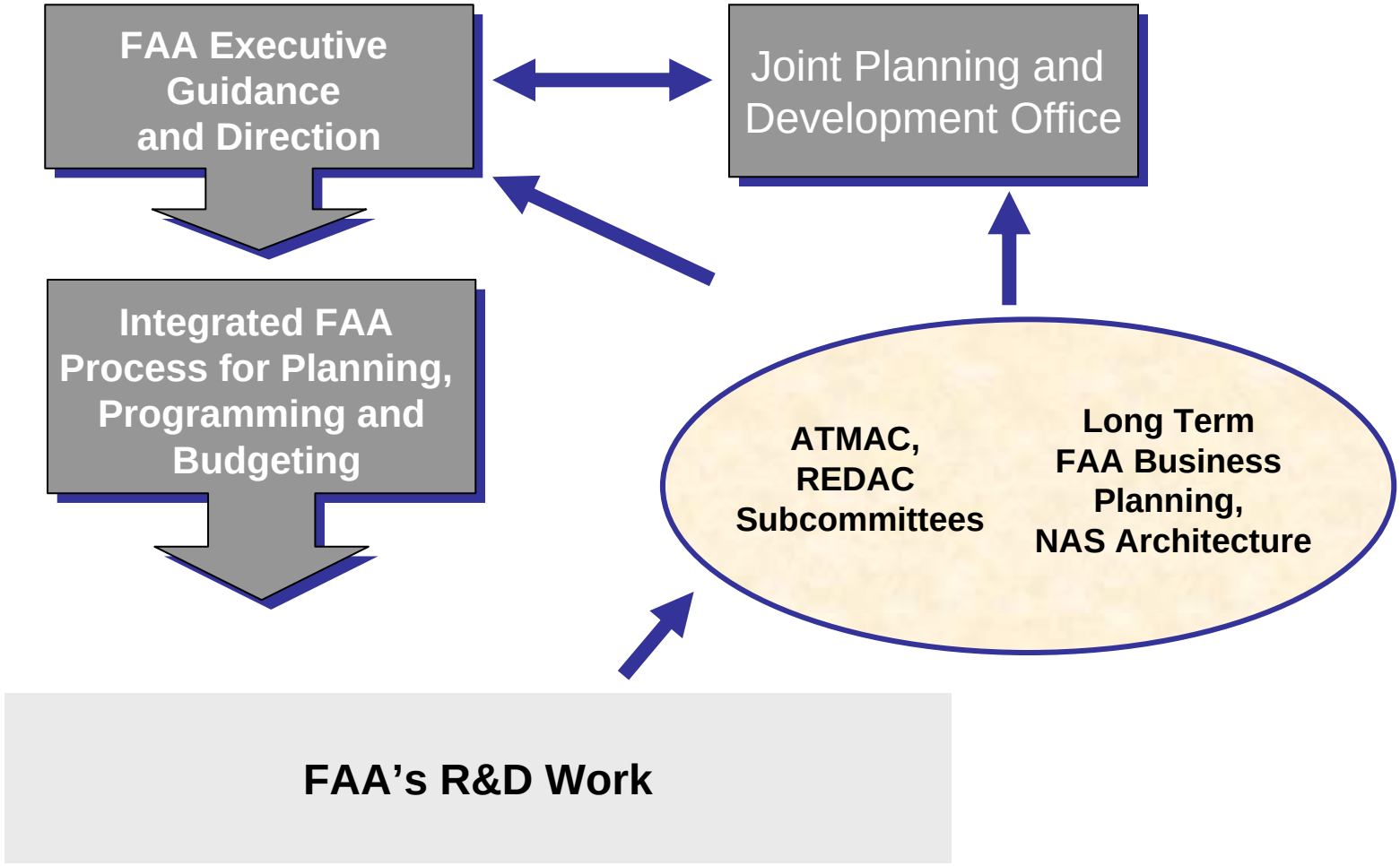
Organizational Change

- JPDO continues as a separate entity responsible for:
  - Ensuring safety, security, mobility, efficiency, and capacity needs are met beyond OEP
  - Through collaboration between multiple federal agencies and industry partners
- Charlie Keegan new FAA ATO VP, Operations Planning
  - Wearing two hats…Director of JPDO and FAA ATO VP for Operations Planning
- Integrates leadership for seamless connection between near term and long term planning of the FAA and JPDO

Planning Relationships



FAA Strategic Management of R&D



Norm Fujisaki

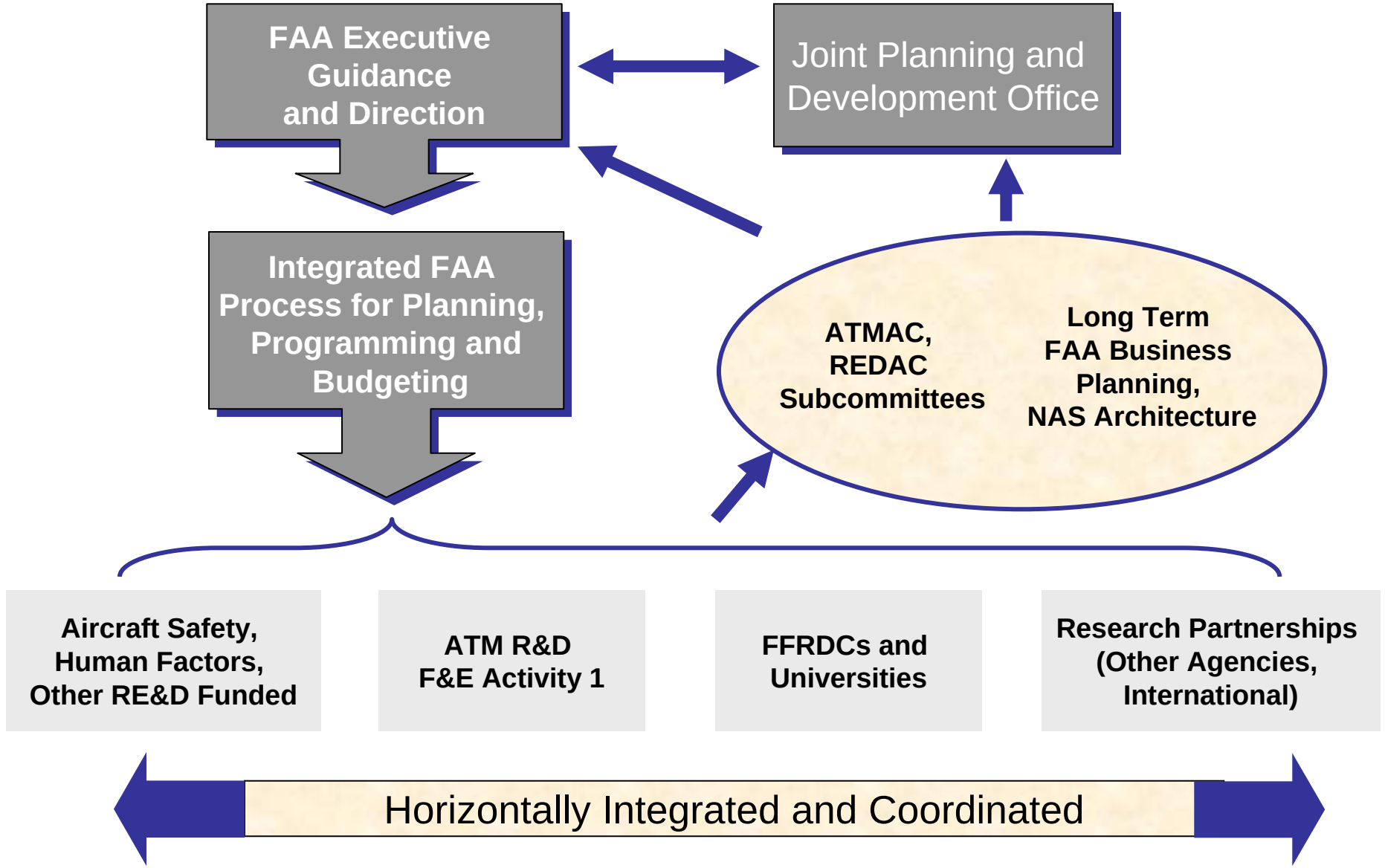
Vice President
Operations
Planning
Services, ATO

Restructured R&D to Support JPDO and OEP Transitions

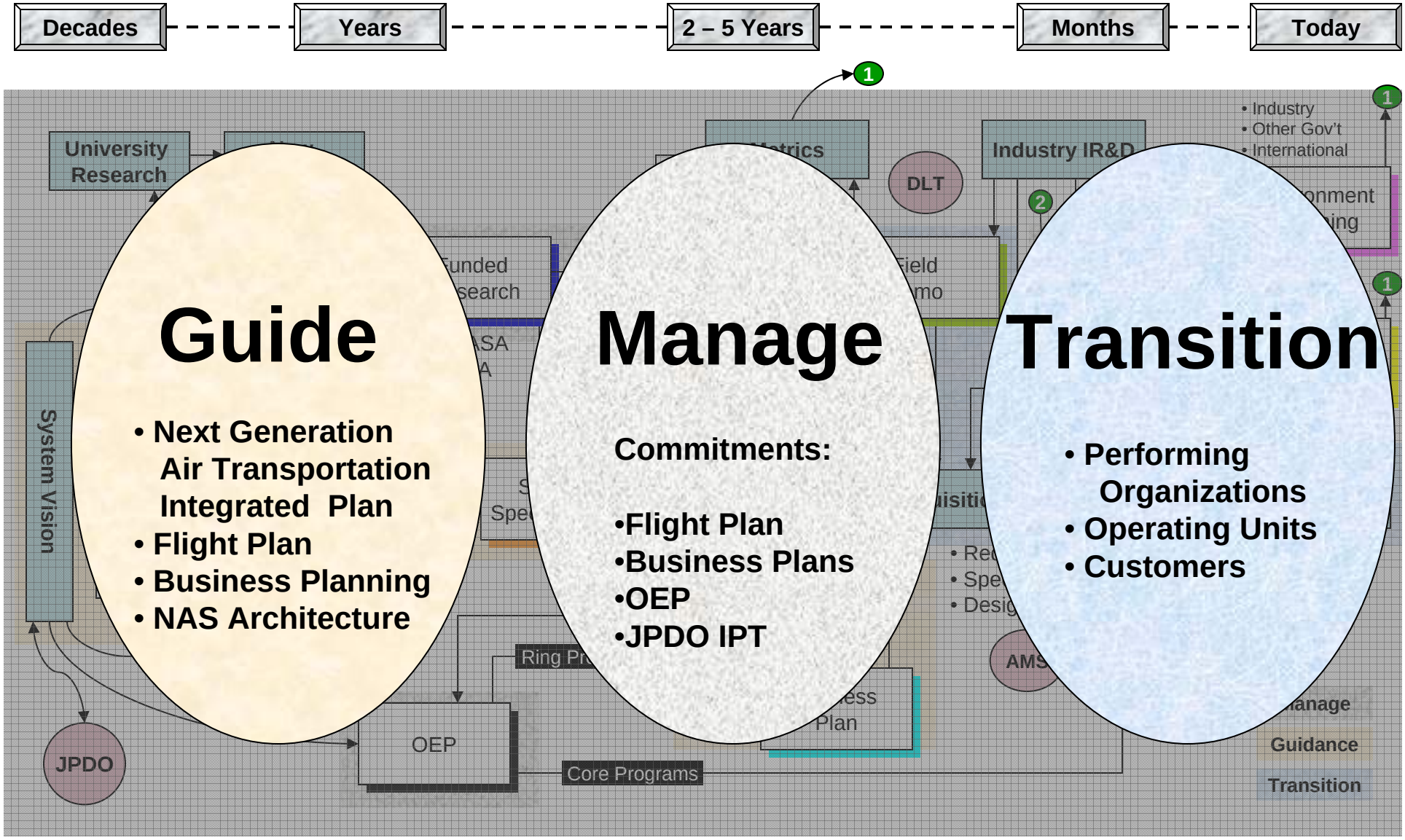
ato
AIR TRAFFIC ORGANIZATION

Restructured R&D to Support JPDO and OEP Transitions

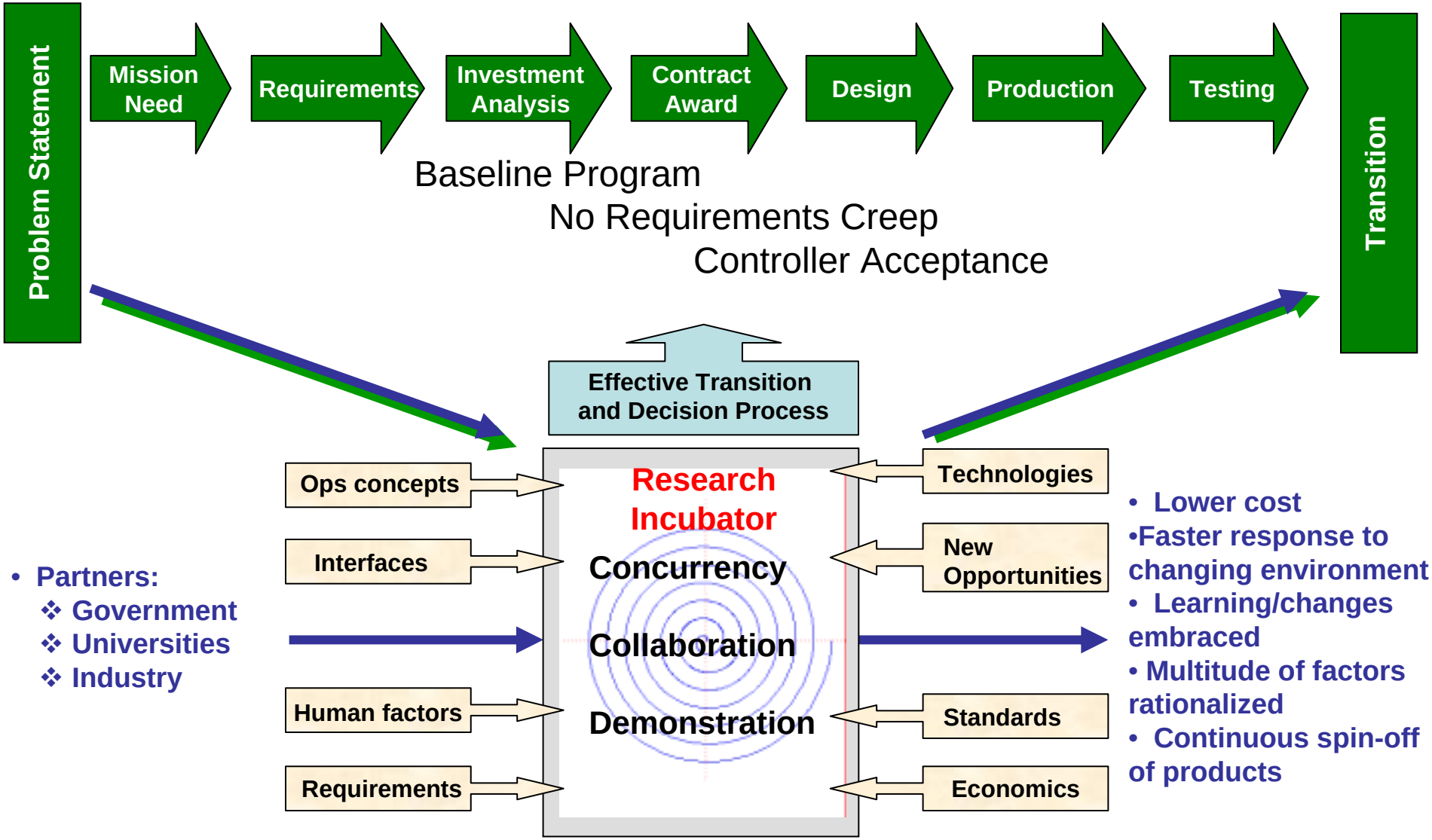
FAA Strategic Management of R&D



R&D Management Approach



An Alternative to Our Linear Process



- Partners:
  - Government
  - Universities
  - Industry

- Lower cost
- Faster response to changing environment
- Learning/changes embraced
- Multitude of factors rationalized
- Continuous spin-off of products

Next Steps

- Engage community
  - REDAC Subcommittee on ATM (February 8)
  - ATMAC Steering Committee (February 11)
  - ATMAC (February 25)
  - NASA ARAC (Aeronautics Research Advisory Committee) (March 23-24)
  - REDAC (April 12-13)
  - ATCA Technical Meeting, Atlantic City (April 17-19)

National Airspace System (NAS) Performance Assessment and the OEP

George H. Solomos

Associate Program Manager, Modeling Simulation and Performance Analysis

OEP Analysis Team: William Baden, Michael Callaham, Nazanin Eshragh, Jerome Freedman, Jacqueline Kee, David Millner, Lorrie Smith

7 February 2005

Overview

- Current state of the system
  - Traffic demand, delays, and en route operations
- Important analyses released since last industry day
  - Their impact on OEP
- Updated model results
  - Influence of new demand forecasts
- Modeled vs. actual performance
  - How are we doing in predicting future performance?
- The changing landscape
  - A closer look at Effective Capacity

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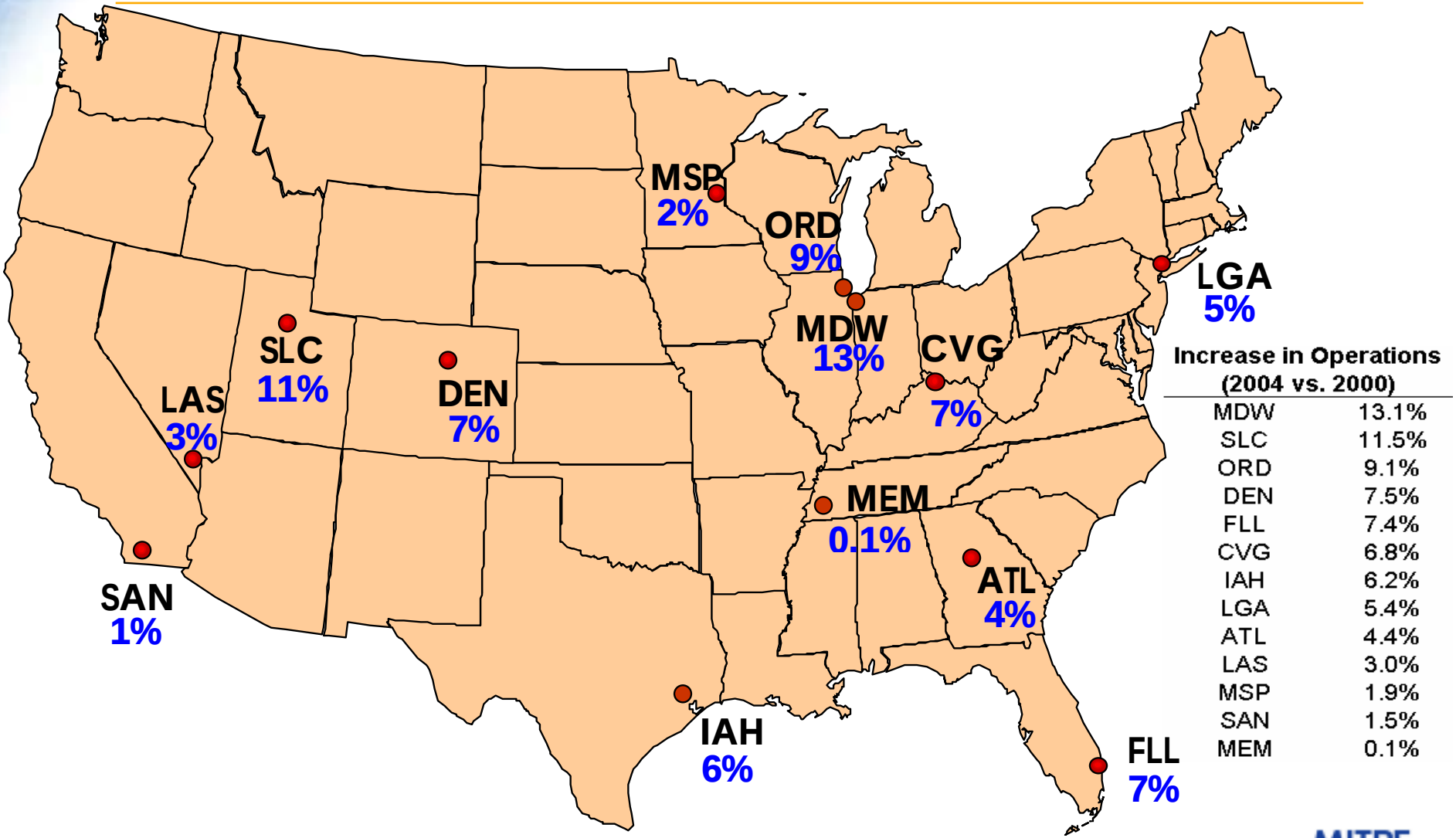
Current State of the System

Traffic is On the Rise

13 of 35 OEP airports have more traffic (FY2004 vs. FY2000)



Increase in Operations (2004 vs. 2000)

MDW	13.1%
SLC	11.5%
ORD	9.1%
DEN	7.5%
FLL	7.4%
CVG	6.8%
IAH	6.2%
LGA	5.4%
ATL	4.4%
LAS	3.0%
MSP	1.9%
SAN	1.5%
MEM	0.1%

Source: OPSNET

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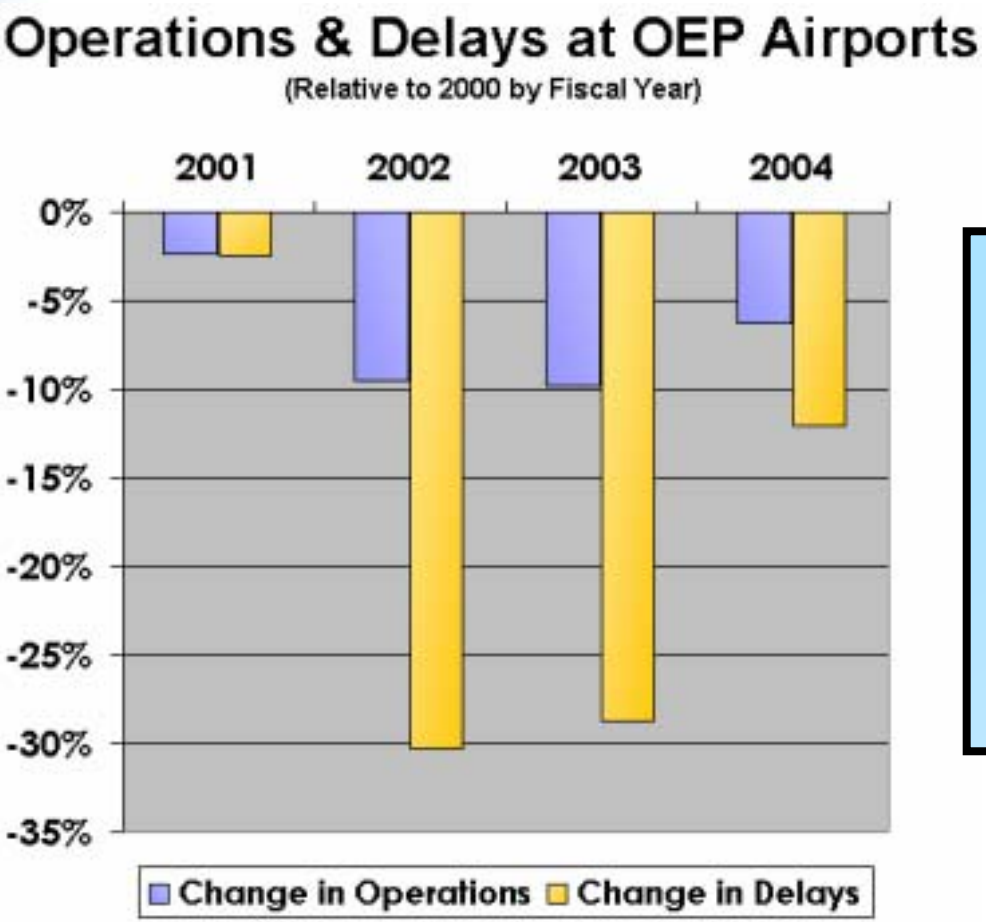
Delays are Down

NAS-Wide Delays Are Still Below 2000 Levels



- **Operations were 6.3% lower in FY 2004 than in FY 2000.**
- **Delays were 12.0% lower in FY 2004 than in FY 2000.**
- **Delays have increased from their FY 2002 low.**

Source: OPSNET (Operations); ASPM (Delay)

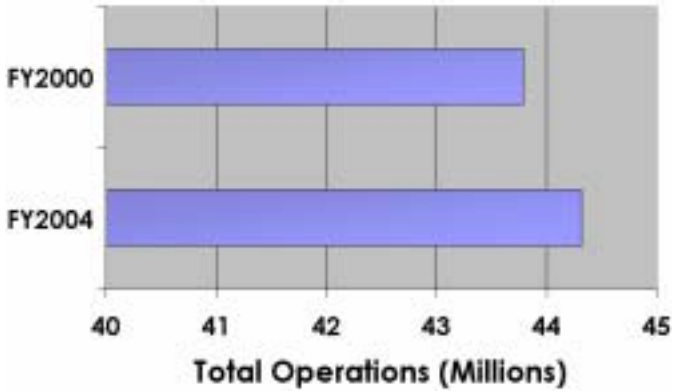
En Route Traffic is Increasing

En Route Traffic has surpassed 2000 levels

En Route Operations
FY 2004 vs. FY 2000

ZSE -10%
ZLC -2%
ZMP 0%
ZAU +2%
ZOB -4%
ZBW -3%
ZNY +2%
ZDV +6%
ZOA +1%
ZKC -7%
ZID +6%
ZDC +2%
ZLA 0%
ZAB N/A*
ZFW -1%
ZME +3%
ZTL +5%
ZHU +1%
ZJX +4%
ZMA +9%

Overall +1%*



Source: OPSNET

*Does not include ZAB (inconsistent data)

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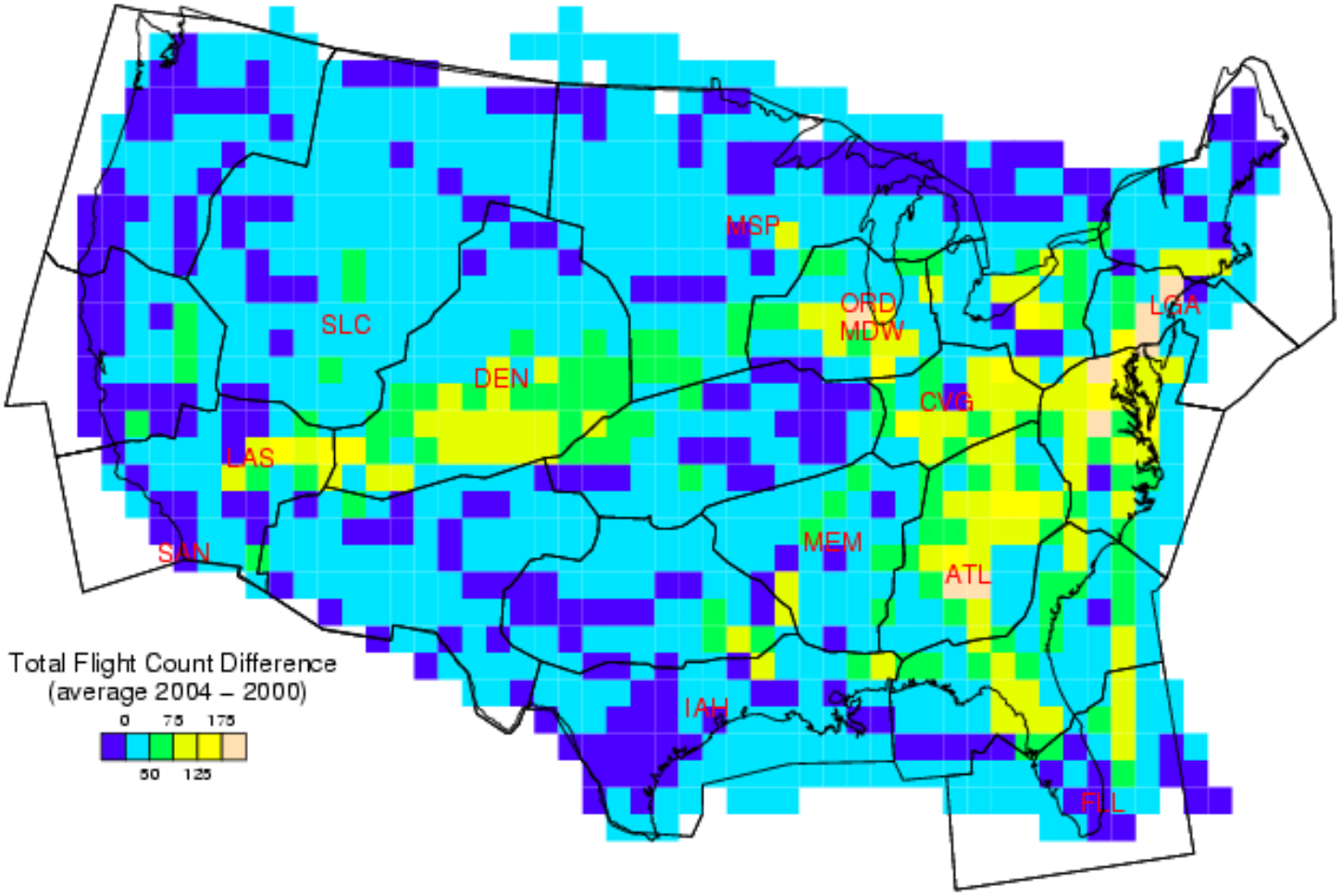
Document Number Here

Differences in Total Flight Counts

En Route Traffic Growing in Most Congested Areas (High Altitude)



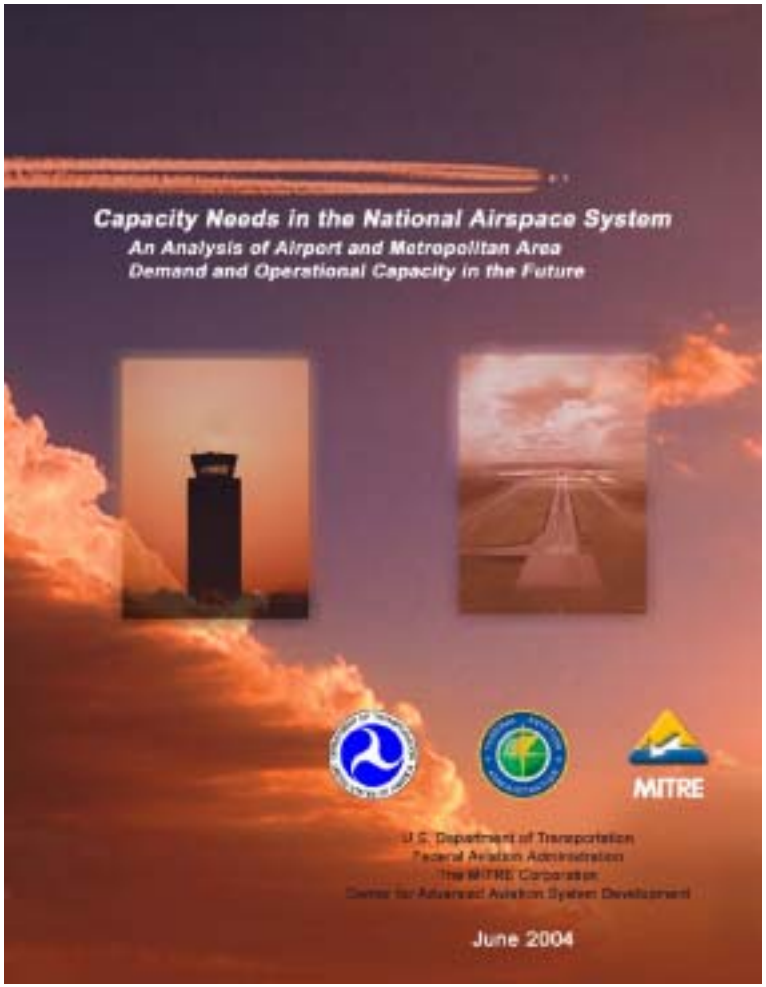
Source: ETMS: 19 and 23 Good Weather Weekdays in ’00 and ’04, resp.

Important Analyses Released Since Last Industry Day

Capacity Needs in the NAS

Identifying Airports Needing Additional Capacity

Determine which airports will need additional capacity & why, given the anticipated future demand for air travel



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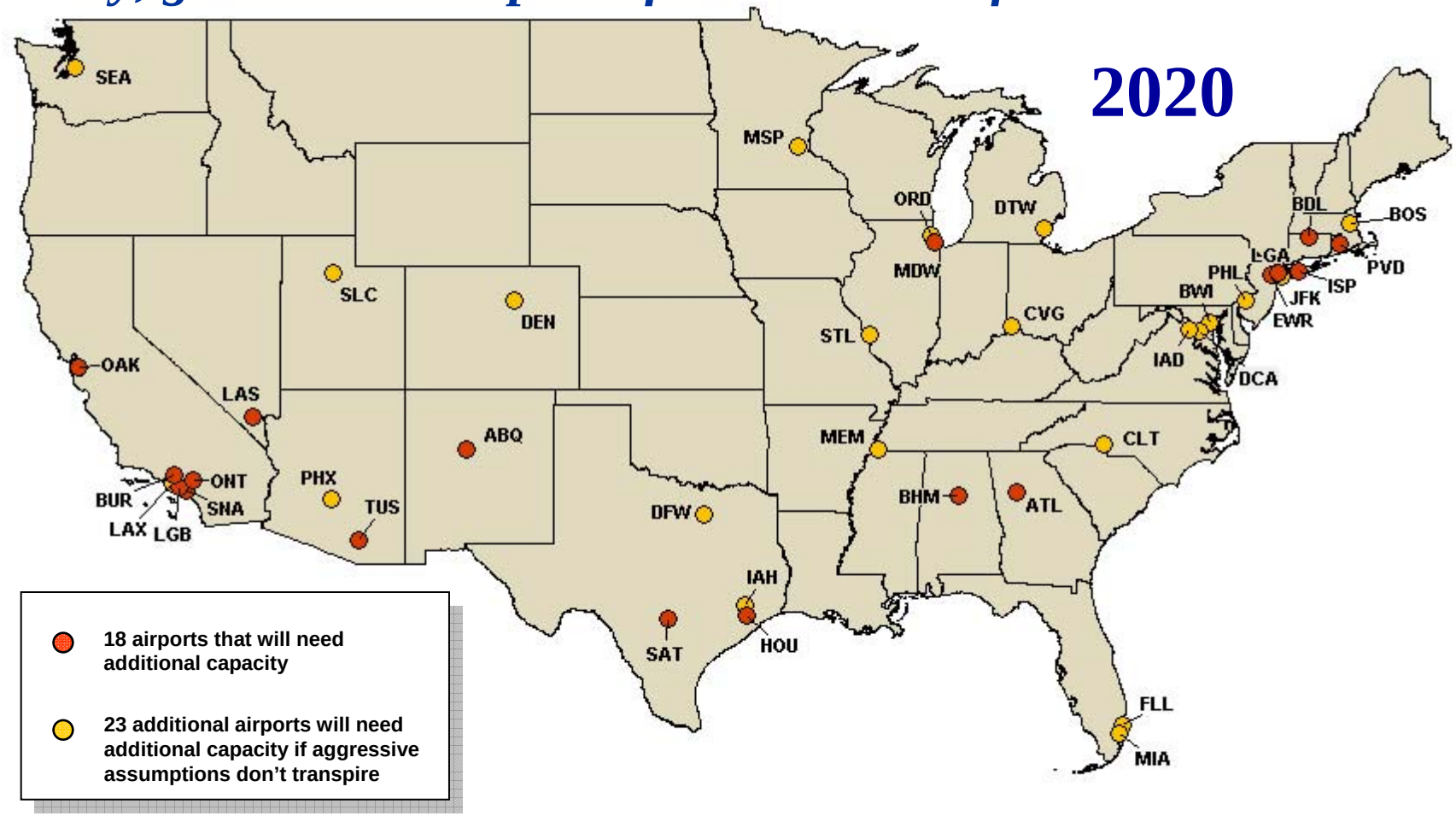
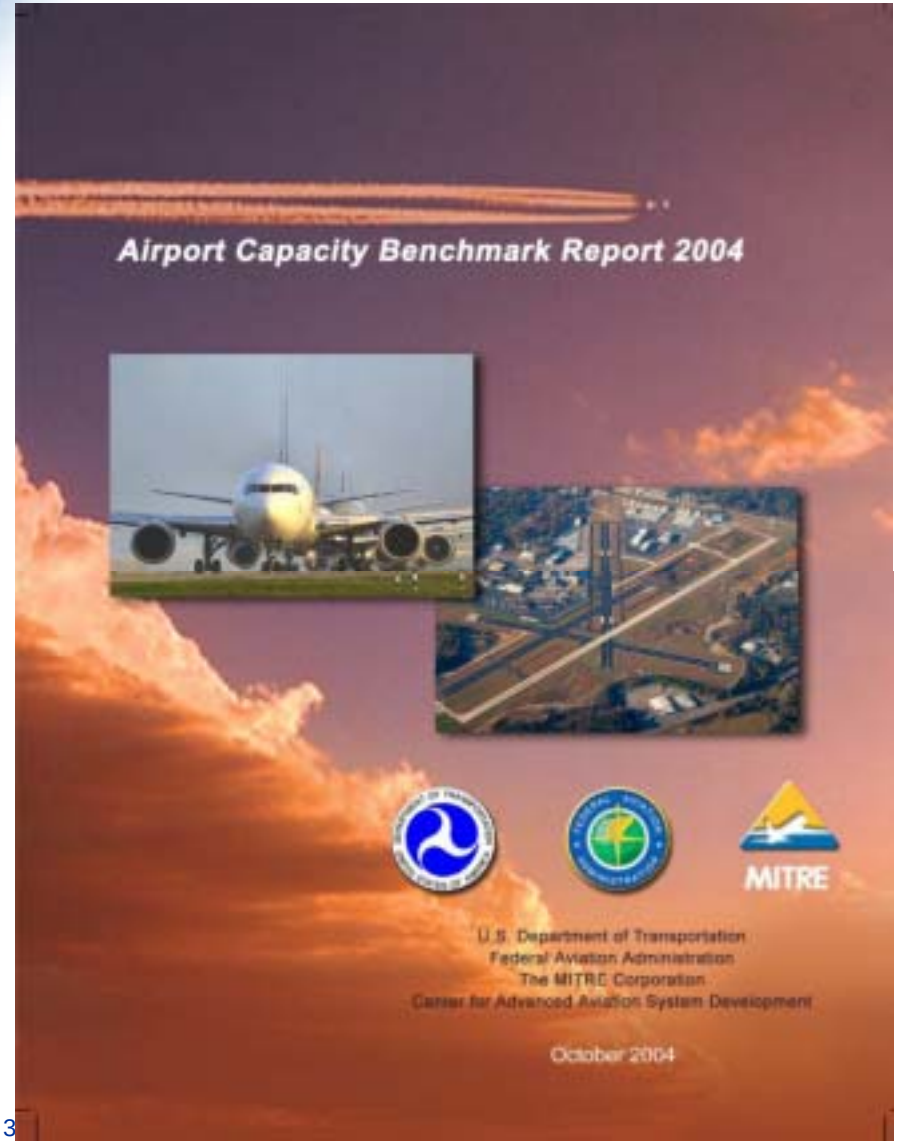


Airport Capacity Benchmarks

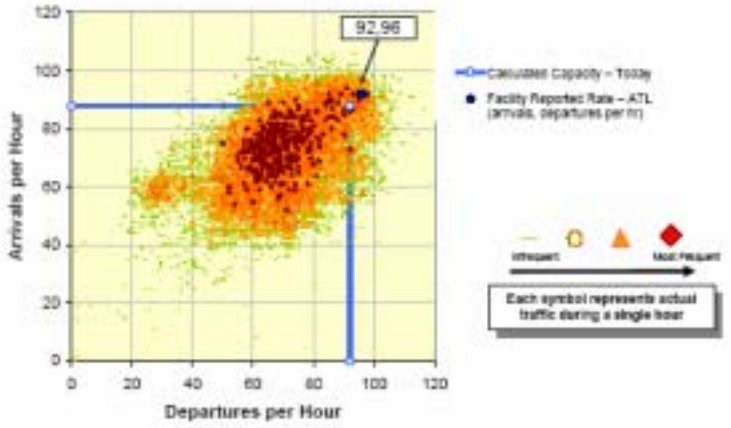
Capacities for Current and Future Configurations



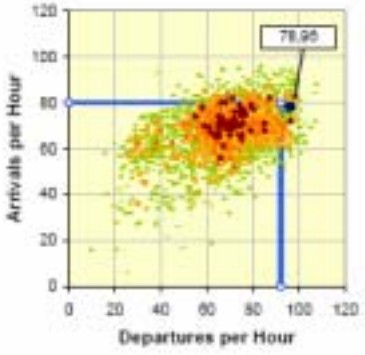
ATLANTA – Hartsfield-Jackson Atlanta International Airport (ATL)

Calculated Capacity (Today) and Actual Throughput

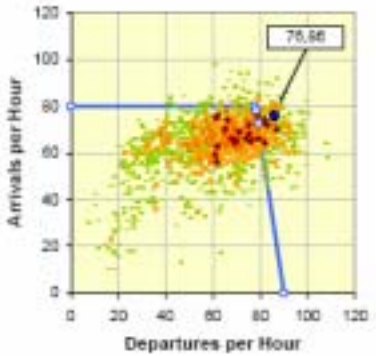
Optimum Rate



Marginal Rate



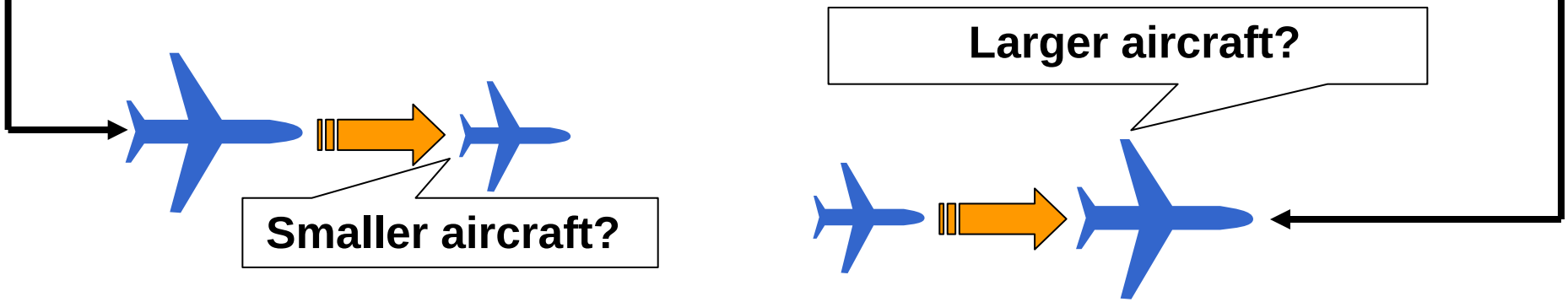
IFR Rate



Terminal Area Forecasts

Updating Predictions as the System Adjusts

Airport	2002 TAF (2013)	2003 TAF (2013)	% Change in 2013 *Forecast Growth*
SFO	385,538	446,791	+16%
ORD	1,096,905	1,262,988	+15%
LAS	603,772	664,583	+10%
ATL	1,201,570	1,240,685	+3%
MDW	404,504	346,471	-14%
STL	513,823	366,418	-29%



Updated Model Results

NAS Performance Assessment

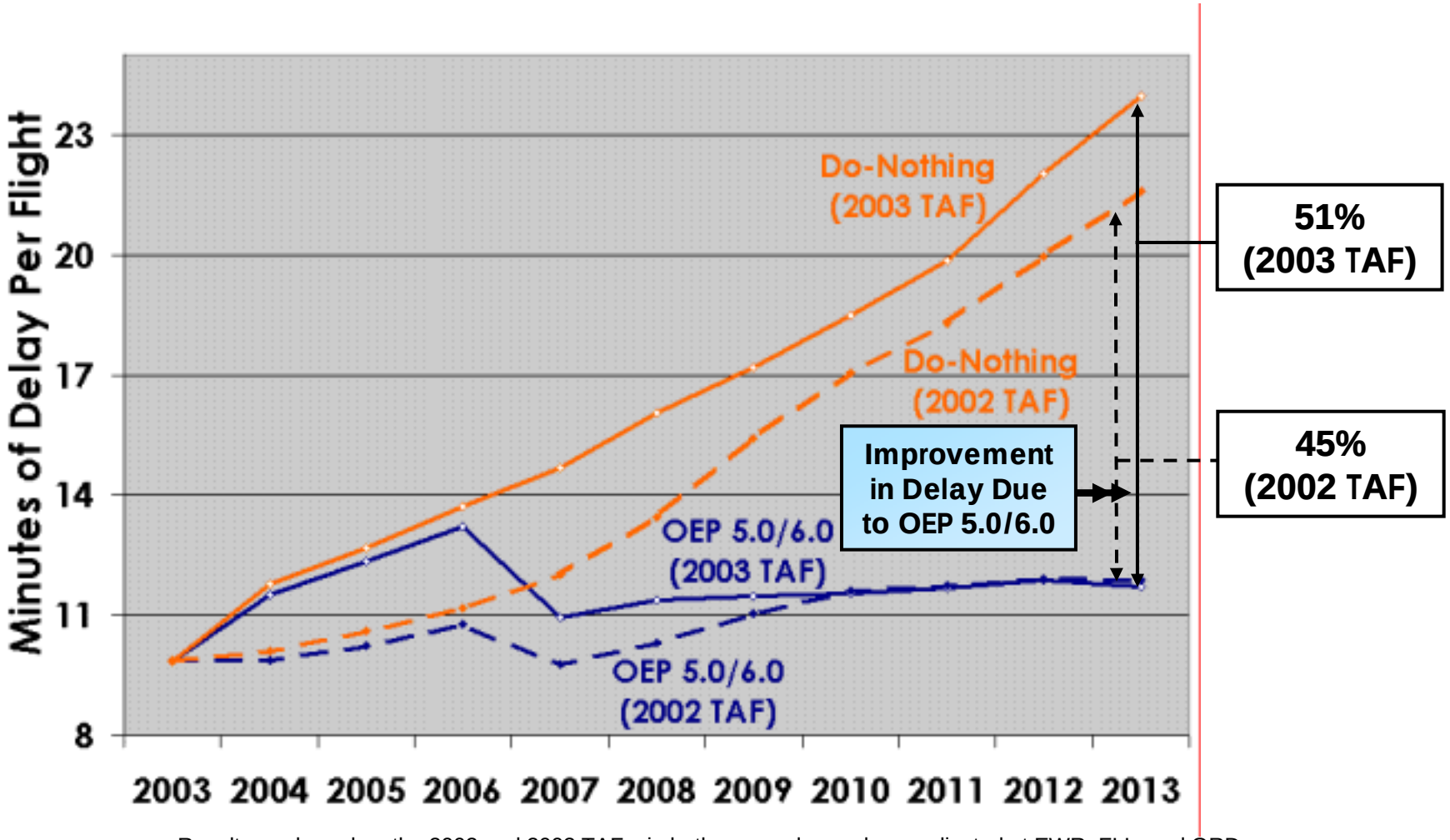
Anticipated High Scheduled Arrival Delays

Expected Annual Arrival Delay (FY2013)		
Airport	TAF 2002	TAF 2003
EWR	35.61	31.96
FLL	27.87	25.89
IAD	12.00	12.56
JFK	12.86	13.36
LGA	15.67	16.07
MIA	12.22	12.22
ORD	21.59	22.72
PHL	13.81	14.58
CLT	10.76	12.05

*OEP version 5.0/6.0 results are based on the 2002 and 2003 TAFs; in both cases, demand was adjusted at EWR, FLL, and ORD.

Changing NAS Performance

OEP v5.0/6.0 Implemented Year by Year

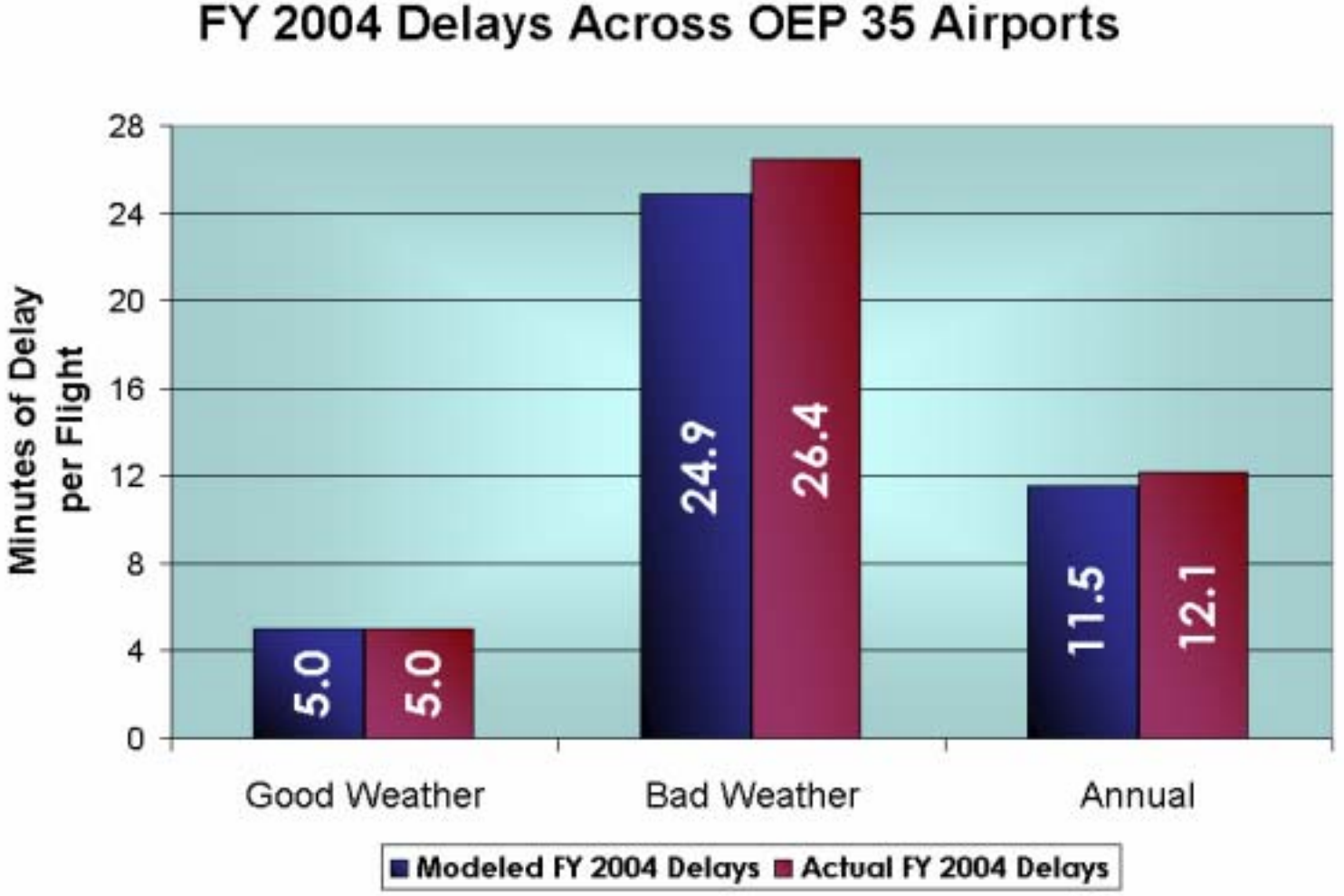


Results are based on the 2002 and 2003 TAFs; in both cases, demand was adjusted at EWR, FLL, and ORD.

Modeled vs. Actual Performance

Quality of Performance Estimates

Comparison of FY04 Modeled vs. Actual Delays

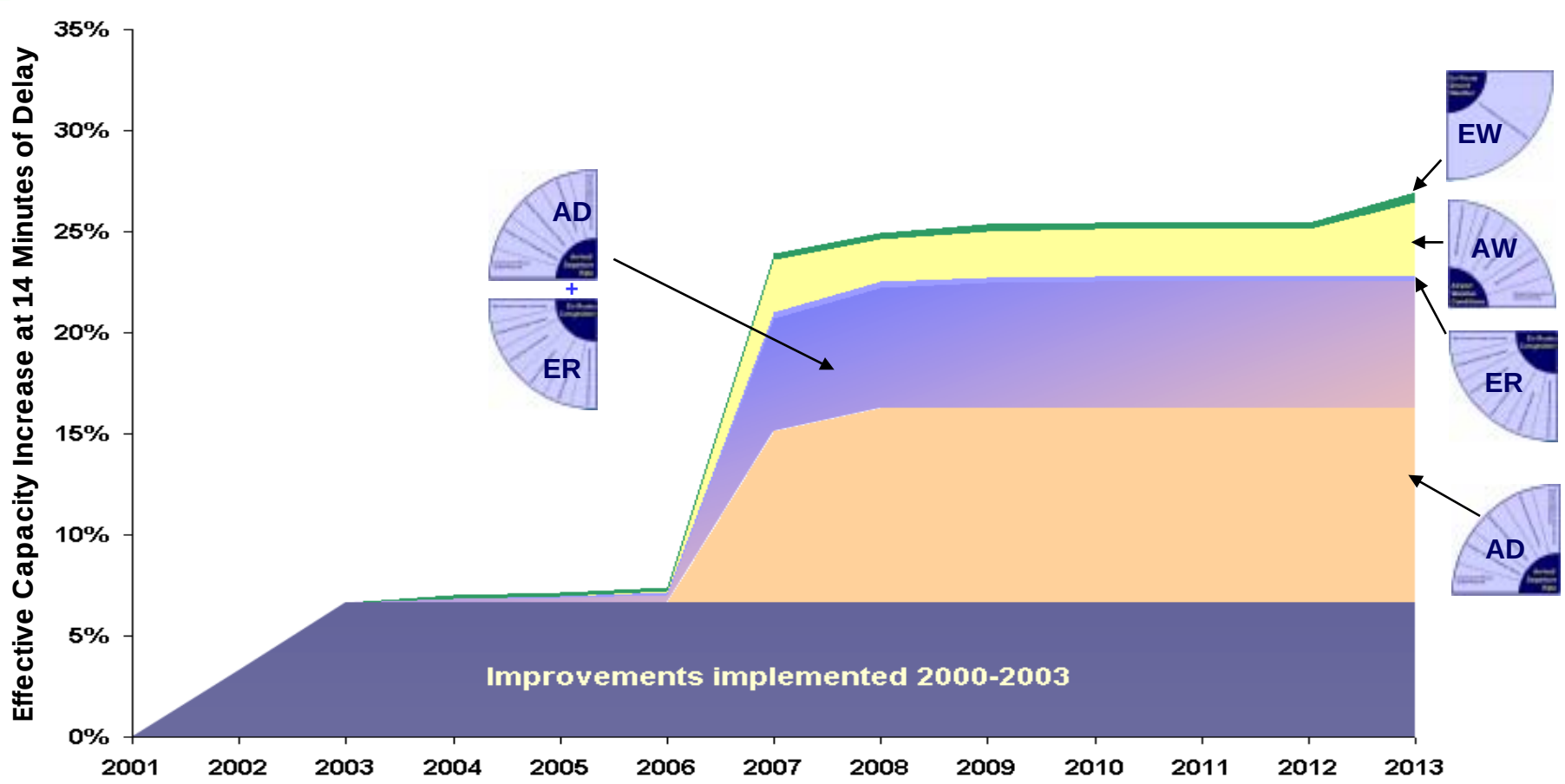


*OEP version 5.0/6.0 results are based on the 2003 TAF

The Changing Landscape

NAS-Wide Effective Capacity

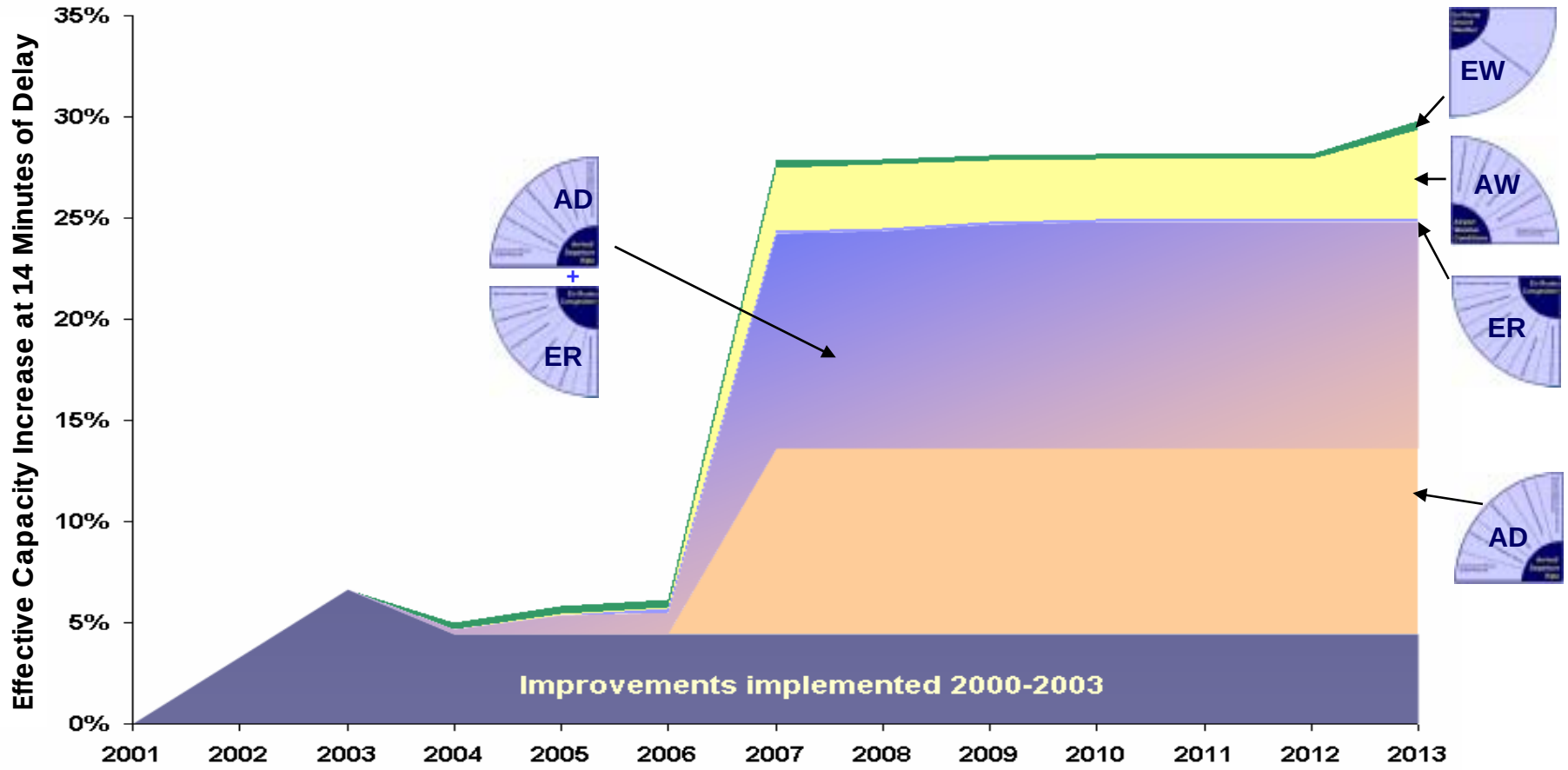
Past Results: Full OEP version 5.0 (2002 TAF)



Effective capacity results are based on the 2002 TAF; demand was adjusted at EWR, FLL, and ORD.
Results presented last Industry Day.

NAS-Wide Effective Capacity

Current Results: Full OEP version 5.0/6.0 (2003 TAF)

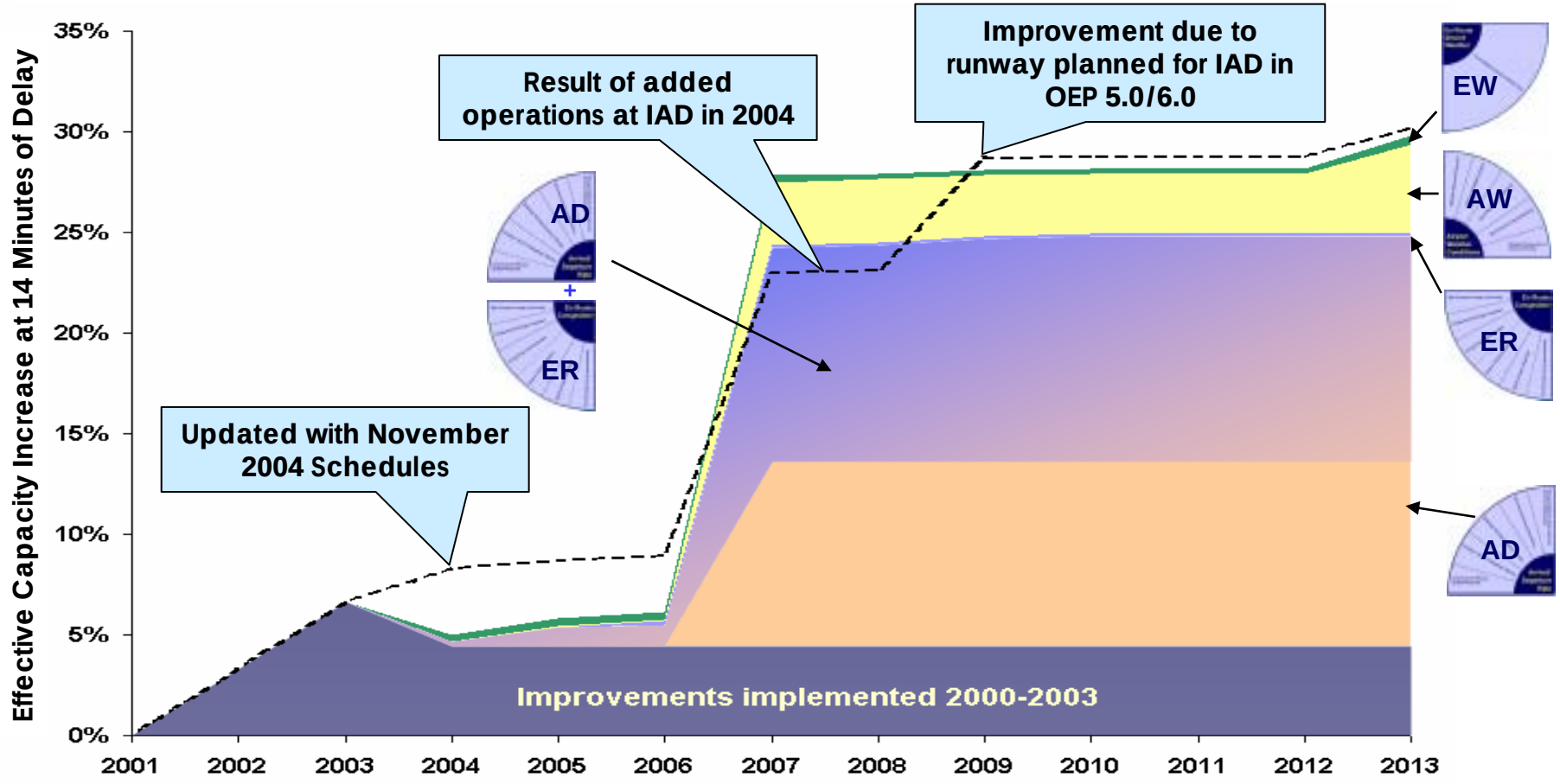


Effective capacity results are based on the 2003 TAF; demand was adjusted at EWR, FLL, and ORD.

NAS-Wide Effective Capacity

Current Results: Full OEP version 5.0/6.0 (2003 TAF)

Updated November 2004 Schedules



Effective capacity results are based on the 2003 TAF; demand was adjusted at EWR, FLL, and ORD.

Summary

- Continue pressing forward on improvements
- Work on ways to obtain VMC-like capacities during IMC conditions
- Certain airports will continue to be/begin to be challenging as the system undergoes rapid change
- Airports outside the current OEP need to be closely followed as they grow
- Version 8 will address many of these issues

MITRE

Gisele Mohler

Manager

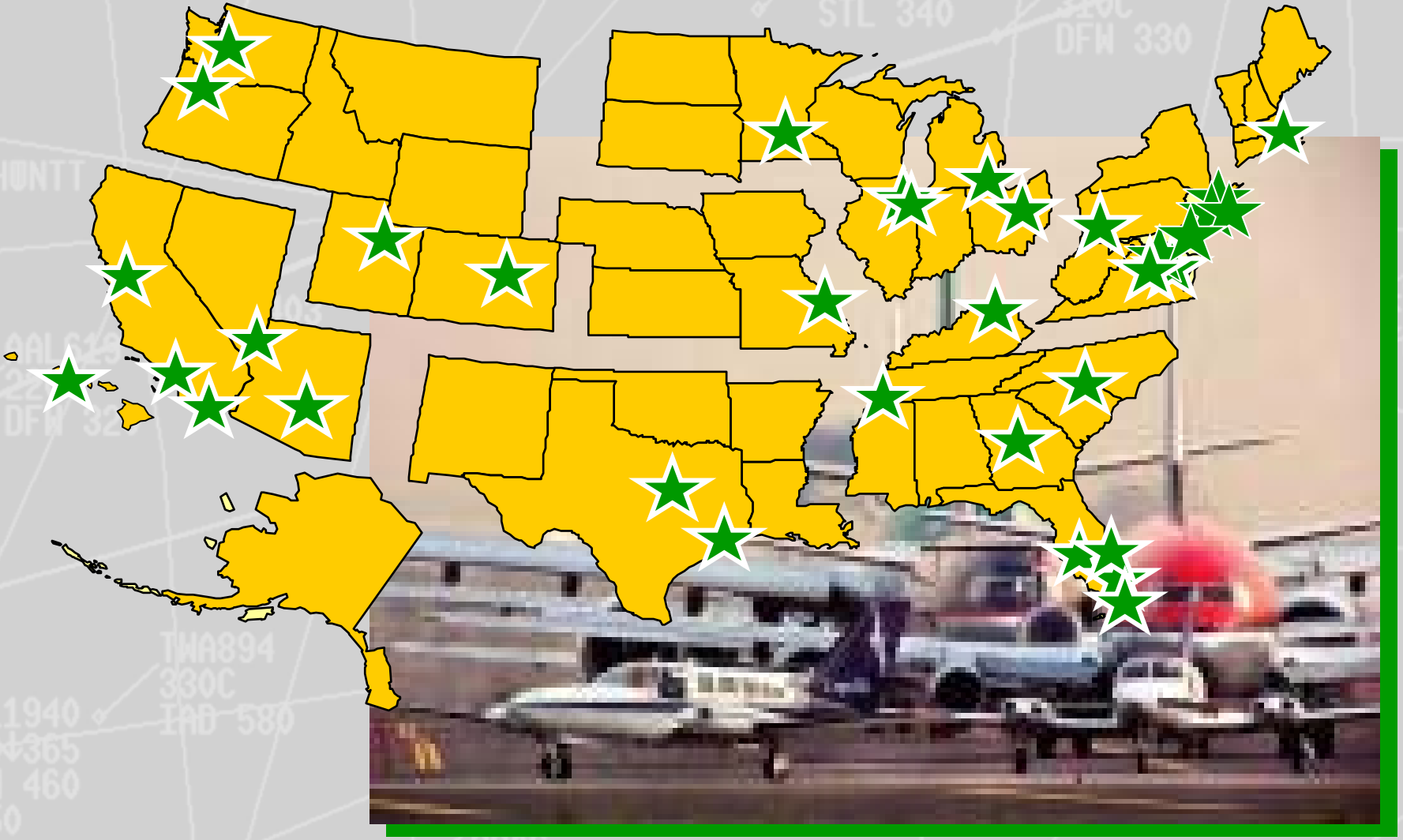
Operational Evolution Plan

Introduction of New OEP Design


AVIATION WEEK & SPACE TECHNOLOGY
DELAYS
Can't We Do Better Than This?

Remember?

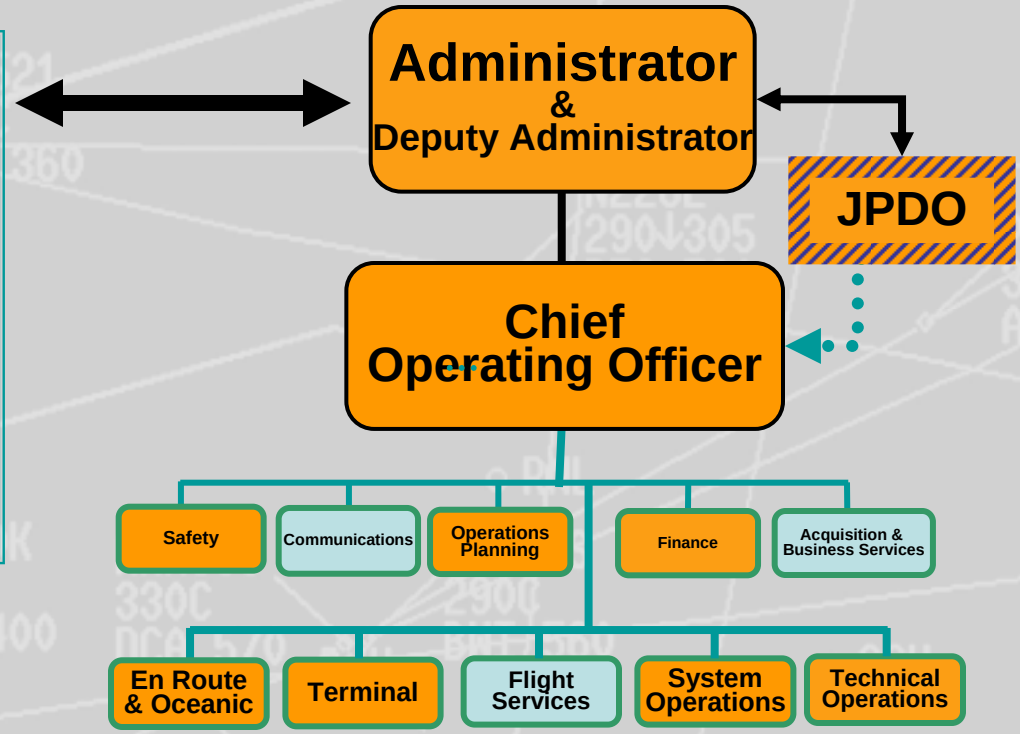
Focus is Capacity at the 35 OEP Airports



Focus is Coordination with Aviation Community

Focus in FAA is Cross-agency

- FAA Aviation Safety
- FAA Regions
- FAA Airports
- NATCA
- DOD
- MITRE CAASD



Focus is Commitment and Accountability

- **Commitment:**
  - ✓ **New Structure**
  - ✓ **Criteria**
  - ✓ **10-Year Schedule**
- **Accountability**
  - ✓ **Executive Team, FAA OEP Work Group, Quadrant Managers, Primary Offices of Delivery, Transition Managers, Initiative Leads**
  - ✓ **New Version of OEP with Report Card**
  - ✓ **Industry Day Forum**

Improved OEP Structure

What was:

4 quadrants

What is:

4 quadrants and

2 transition rings

OEP Core Criteria

- **Entry of a project into the Core OEP**
  - ✓ Project is specifically defined and scoped
  - ✓ Specific benefits are known
  - ✓ Specific costs of achieving benefits are known
  - ✓ Specific schedule, benefits known and benefits occur within the next 10 years
  - ✓ Industry, community and FAA commitment exists to complete the project and achieve the benefits; includes financial commitment
  - ✓ Solution set written
  - ✓ For F&E projects, through JRC 2
- **No new entries for Version 7**

Solution Set:

ARPT-1: New & Extended Runways

FY05 forward: Cleveland, Minneapolis, Cincinnati, St. Louis, Atlanta, Boston, Charlotte-Douglas, Seattle, and 10 in EIS

POD: Ben DeLeon

Airport Congestion

QM Michael O'Harra

Solution Sets:

FLOW-1: Improved Weather Information
Collaborative Convective Forecast Product
POD: Mike Sammartino

FLOW-2: Improved Traffic Flow Collaboration
Collaborative Decision Making
POD: Mike Sammartino

FLOW-3: Fill Gaps in Arrival Streams
Traffic Management Advisor
POD: Mike Gough

QM
Pamela Seldon-Moore
ATM Flow Efficiency

QM
Debbie
Johnson
(Jay Merkle)

Terminal Area
Congestion

Solution Sets:

TERM-1: Fill Gaps in Arrival Streams
Time-based Metering
POD: Mike Gough

TERM-2: Terminal Airspace Redesign
POD: Steve Creamer

TERM-3: New Arrival/Departure Routes
POD: David Madison

TERM-4: New Approaches
RNP, RPAT; LNAV/VNAV; SIAPS; LPV; etc.
POD: David Madison

TERM-5: Separation Standard Reductions
Wake
POD: David Madison

TERM-6: Improved Terminal Wx Information
Integrated Terminal Weather System
POD: Teri Bristol

QM
Greg Burke
(John Thornton)

En Route Congestion

Solution Sets:

ENRT-1: User Preferred Routing
User Request Evaluation Tool (URET)
POD: Mike Gough

ENRT-2: Reduced Oceanic Separation
30/30 separation
POD: David Ford

ENRT-3: Reduced Vertical Separation
DRVSM
POD: Robert Swain

ENRT-4: Reduce Voice Communication
POD: Mike Gough

ENRT-5: En Route Airspace Redesign
POD: Steve Creamer

The OEP Exit Criteria

- **Exit of a project from the OEP**
  - ✓Successful completion of the project
  - ✓Determining that the Entry Criteria are no longer met, a project is returned to a ring if it still holds promise for future use, otherwise it is removed altogether from the OEP
- **For Version 7, these projects exited**:
  - ✓Crossing runway procedures
  - ✓New Dulles runway
  - ✓Some (less significant) airspace projects
  - ✓Local Area Augmentation System (LAAS)

Lorne Cass

RTCA Co-Lead
OEP Work Group
and
Director
Flight Dispatch
Northwest Airlines

OEP Core

Customer Issues Presentation

Overview

- ***The aviation community has significant challenges which much be addressed to allow growth in the national air transportation system. Reinvigorating the OEP is a positive step towards meeting those challenges***
- ***Industry will continue to work with FAA to ensure the best capabilities are implemented***

Summary of Aviation Community WG Recommendations

- *Priorities*
  - *Area Navigation and Performance-Based Navigation Procedures*
  - *Time Based Metering*
  - *Surface Traffic Management*
- *Continuing initiatives providing great benefit*
  - *FAA focus on Airspace Redesign, URET Conflict Probe and CDM activities is positive and progressive*
  - *FAA/customer contractual commitment discussions continue in a fiscal and operational environment*
- *Mid-Term (2004-2008) focus*
  - *Be ready for En Route Automation Modernization*
    - *Develop an ADS-B roadmap*
    - *Develop a Datalink roadmap*
  - *Develop a LAAS roadmap including a research & development initiative – e.g., "Is LAAS CAT 3 capable?"*

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Core Perspective

- ***Area Navigation, Performance-Based Navigation Procedures, Time Based Metering and URET are included***
- ***There should be continued emphasis on TFM/CDM***
- ***New runways and airspace redesign must be linked***

Dave Watrous

President
RTCA

Panel #1

OEP Core Commitments

- **Basil Barimo, ATA VP Operations & Safety**
- **Bob Lamond, NBAA Director Air Traffic Services & Infrastructure**
- **Scott Foose, RAA Vice President**
- **Col. Dale Goodrich, USAF Dep.Dir. Airspace, Ranges and Airfield Operations**

- **Ruth Leverenz, FAA Asst. Administrator Regions & Center**
- **Bruce Johnson, FAA ATO VP Terminal Services**
- **Rick Day, FAA ATO VP En Route & Oceanic Services**
- **Mike Cirillo, FAA ATO VP System Operations**

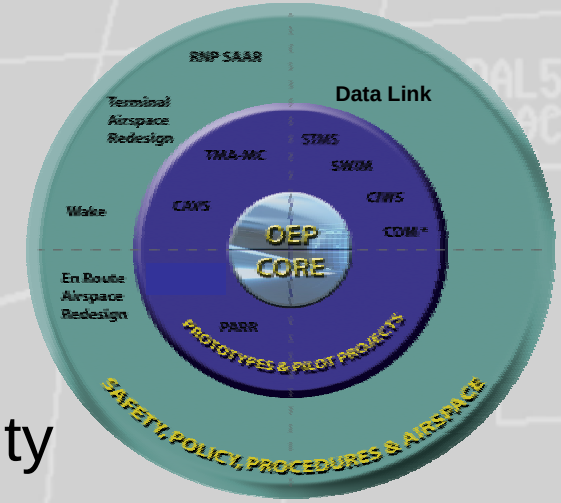
Loretta Martin

Senior
Operations
Advisor
Operational
Evolution Staff

Introduction of New OEP Transition Rings

Rings Criteria

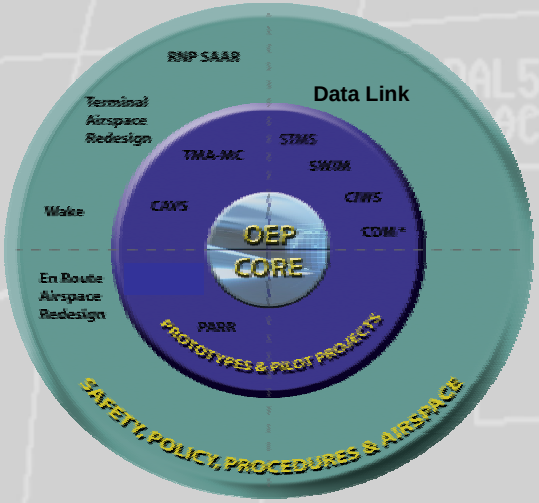
Pilots and Prototypes



- Manageable Risks
- Implementation Costs and Affordability
- Capacity and Efficiency Benefits
- Initiative Champions
- Policy Evaluation/Existing or New
- Schedule of Benefits Accrual
- Consistent with Current & Future Plans and Operational Concepts
- Field Trial or Field Evaluation

Rings Criteria

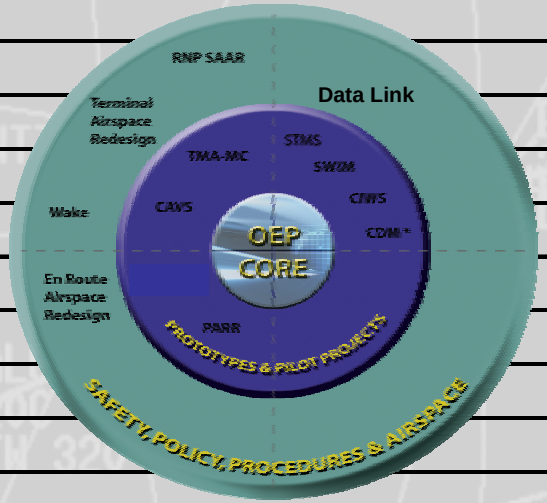
Safety, Policy, Procedures & Airspace



- Manageable Risks
- Initial Funding
- Implementation Costs and Affordability
- Capacity and Efficiency Benefits
- Initiative Champions
- Policy Evaluation/Applicability
- Compatibility with Existing Procedures
- Schedule of Benefits Accrual
- Supports Current Plans and Operational Concepts

OEP Criteria Matrix Sample

CRITERIA MATRIX FOR ENTRY INTO THE SAFETY, POLICY, PROCEDURES AND AIRSPACE RING



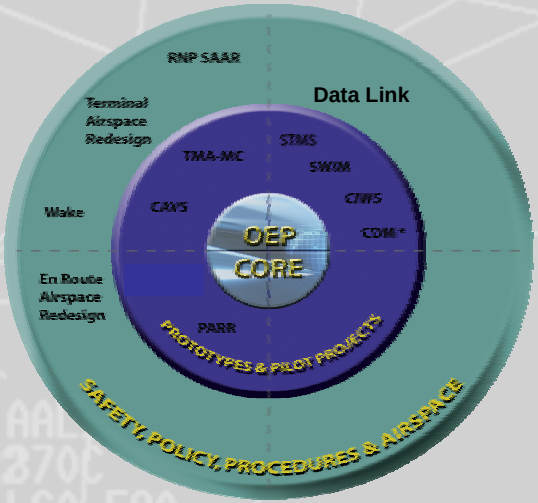
	Risks have been evaluated and appear to be manageable									
		Initial funding has been identified								
			Estimates of implementation costs exist and are believed to be affordable							
				Estimates of operational benefits exist and have been identified						
					Both an FAA operations and operating user champions exist					
						Existing/proposed policy has been evaluated for applicability				
							Compatibility with existing procedures has been evaluated			
								Schedule estimate exists for when benefits will accrue		
									The change supports current plans and operational concepts	
RNP SAAAR Future Approach Applications	yes	yes	yes	yes	yes	yes	yes	yes	yes	
Mid Term Wake Departure and Approach Applications	yes	yes	yes	yes	yes	yes	yes	yes	yes	
Terminal Airspace Redesign	yes	yes	unk	yes	yes	yes	yes	yes	yes	
En Route Airspace Redesign	yes	yes	unk	yes	yes	yes	yes	yes	yes	

*unknown - Most redesign projects have multiple alternatives which are evaluated during the environmental process. Until we have a Record of Decision identifying a specific solution, we can not determine the infrastructure costs.

OEP Transition Managers

- **Pilots and Prototypes Transition Ring**
  - ✓ Wilson Felder, Director Technical Development, ATO Operations Planning Services

- **Safety, Policy, Procedures and Airspace Transition Ring**
  - ✓ John McGraw, Manager, Flight Technologies & Procedures Division, Flight Standards Service, Aviation Safety



OEP Transition Rings Initiatives

Prototypes & Pilot Projects Transition Ring

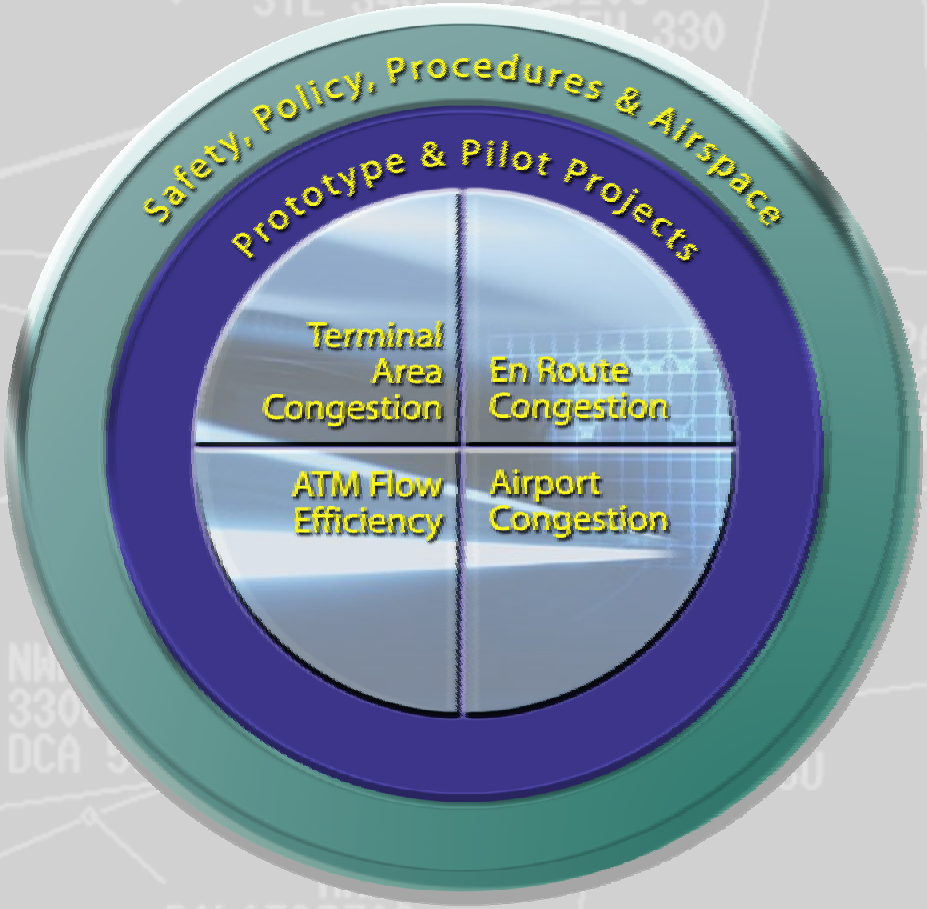
- CDTI Assisted Visual Separation -- John Marksteiner
- Problem Analysis Resolution & Ranking -- Mike Gough
- Surface Traffic Management System -- William Hall
- System-Wide Information Management -- John Loynes
- Traffic Management Advisor - Multi-Center -- Richard Jehlen
- Collaborative Decision Making Initiatives – John Shaffrey
- Weather Initiatives - Corridor Integrated Weather System –

Safety, Policy, Procedures and Airspace Ring

- Wake Turbulence Research and Development Effort To Enhance Operations For Closely Spaced Parallel Runways -- Steve Lang
- RNP SAAAR (Future Approach Applications) -- Jeff Williams
- Terminal Airspace Redesign -- Rodger Dean
- En Route Airspace Redesign – John Timmerman
- Data Link – Ann Tedford

Roger Wall

RTCA Co-Lead
OEP Work Group
and
Manager
ATM Projects
FedEx



Community Perspectives

OEP Transition Rings Commitments

Summary of Aviation Community WG Recommendations

- *Priorities*
  - *Area Navigation and Performance-Based Navigation Procedures*
  - *Time Based Metering*
  - *Surface Traffic Management*
- *Continuing initiatives providing great benefit*
  - *FAA focus on Airspace Redesign, URET Conflict Probe and CDM activities is positive and progressive*
  - *FAA/customer contractual commitment discussions continue in a fiscal and operational environment*
- *Mid-Term (2004-2008) focus*
  - *Be ready for En Route Automation Modernization*
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Ring Perspective

- ***FAA and Industry need roadmaps which define objectives and milestones for:***
  - ***Data Link***
  - ***ADS-B***
- ***Implement Surface Traffic Management capabilities, identified as an industry priority item***
- ***Expeditiously implement RNP and SAAAR procedures***

Dave Watrous

President
RTCA

Panel #2

OEP Transition Rings

- **Kate Lang, Deputy Associate Administrator Airports**
- **Wilson Felder, OEP Transition Manager Pilot Projects and Prototypes (Development Ring)**
- **John McGraw, OEP Transition Manager Safety, Policy, Procedures and Airspace (Policy Ring)**

- **Capt. Brian Townsend, ALPA Chairman NAS Modernization Committee**
- **Dick Marchi, ACI-NA Sr. VP Technical & Environmental Affairs**
- **Andy Cebula, AOPA Sr. VP, Gov't and Tech Affairs**
- **Rick Heinrich, Rockwell Collins Director Strategic Business Development**

Nick Sabatini

Associate Administrator
FAA Aviation Safety

Russ Chew

Chief Operating Officer
FAA Air Traffic Organization

Response to Customer Feedback and Wrap-Up